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FILE 'AGRICOLA, ALUMINIUM, ANABSTR, APOLLIT, AQUIRE, BABS, BIOCOMMERCE,
BIOTECHNO, CABA, CAOLD, CAPLUS, CBNB, CEABA-VTB, CEN, CERAB, CIN,
COMPENDEX, CONFSCI, COPPERLIT, CORROSION, ENCOMPLIT, ENCOMPLIT2, FEDRIP,
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L1 2145891 S FIBER
L2 0 S L1 AND GUAR AND OAT AND PAYLLIUM
L3 5183 S L1 AND GUAR
L4 586 S L3 AND OAT
L5 119 S L4 AND SUPPLEMENT
L6 62 S L5 AND PSYLLIUM
L7 13 S L6 AND FLAVORING AGENT

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ACCESSION NUMBER: 1999:53248 PROMT
TITLE: 1998 FOOD ADDITIVE SUMMARY.
SOURCE: Food Chemical News, (25 Jan 1999) Vol. 40, No. 49.
ISSN: 0015-6337.
PUBLISHER: Food Chemical News, Inc.
DOCUMENT TYPE: Newsletter
LANGUAGE: English
WORD COUNT: 20496
FULL TEXT IS AVAILABLE IN THE ALL FORMAT

L7 ANSWER 2 OF 13 USPATFULL

AN 2002:322113 USPATFULL
TI Morinda citrifolia (Noni) enhanced animal food product
IN Wadsworth, John J., Orem, UT, UNITED STATES
Story, Stephen P., Alpine, UT, UNITED STATES
Jensen, Claude Jarkae, Cedar Hills, UT, UNITED STATES
PI US 2002182276 A1 20021205
AI US 2001-836881 A1 20010417 (9)
DT Utility
FS APPLICATION
LN.CNT 937
INCL INCLM: 424/765.000
INCLS: 424/769.000
NCL NCLM: 424/765.000
NCLS: 424/769.000
IC [7]
ICM: A61K035-78

L7 ANSWER 3 OF 13 USPATFULL

AN 2002:21854 USPATFULL
TI Method of hydration; infusion packet system(s), support member(s),
delivery system(s), and method(s); with business model(s) and Method(s)
IN Stillman, Suzanne Jaffe, Los Angeles, CA, UNITED STATES
PI US 2002012689 A1 20020131
AI US 2001-963209 A1 20010926 (9)
RLI Continuation-in-part of Ser. No. WO 2001-US9171, filed on 21 Mar 2001,
UNKNOWN
PRAI US 2000-192243P 20000321 (60) *x20*
DT Utility
FS APPLICATION *b6S*
LN.CNT 4740
INCL INCLM: 424/439.000
INCLS: 424/738.000; 514/054.000
NCL NCLM: 424/439.000
NCLS: 424/738.000; 514/054.000
IC [7]
ICM: A61K035-78
ICS: A61K047-00; A61K031-715

L7 ANSWER 4 OF 13 USPATFULL

AN 2000:157020 USPATFULL
TI Cereal products with inulin and methods of preparation
IN van Lengerich, Bernhard, Plymouth, MN, United States
Larson, Merle K., Dassel, MN, United States
PA General Mills, Inc., Minneapolis, MN, United States (U.S. corporation)
PI US 6149965 20001121
AI US 1998-5675 19980112 (9)
DT Utility
FS Granted
LN.CNT 751
INCL INCLM: 426/620.000

NCL INCLS: 426/621.000; 426/619.000; 426/622.000; 426/615.000
NCLM: 426/620.000
NCLS: 426/615.000; 426/619.000; 426/621.000; 426/622.000
IC [7]
ICM: A23L001-164
EXF 426/620; 426/619; 426/621; 426/622; 426/615
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 5 OF 13 USPATFULL
AN 1999:136753 USPATFULL
TI Fiber and vitamin-fortified drink composition and beverage and method of making
IN Kota, Suresh B., Cupertino, CA, United States
Zhang, Bei, Fairfax, VA, United States
Chau, Tommy, Ashburn, VA, United States
Yang, Robert K., Flushing, NY, United States
Cherukuri, Subraman R., Vienna, VA, United States
Banerjee, Abhijit, Alexandria, VA, United States
PA Fuisz Technologies Ltd., Chantilly, VA, United States (U.S. corporation)
PI US 5976603 19991102
AI US 1998-140380 19980826 (9)
DT Utility
FS Granted
LN.CNT 586
INCL INCLM: 426/590.000
INCLS: 426/072.000; 426/074.000; 426/078.000; 426/443.000; 426/573.000;
426/599.000; 426/658.000
NCL NCLM: 426/590.000
NCLS: 426/072.000; 426/074.000; 426/078.000; 426/443.000; 426/573.000;
426/599.000; 426/658.000
IC [6]
ICM: A23L002-00
EXF 426/72; 426/74; 426/443; 426/78; 426/573; 426/590; 426/599; 426/658
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 6 OF 13 USPATFULL
AN 1999:11551 USPATFULL
TI R-T-E cereal with psyllium
IN Ringe, Mitchell L., Maple Grove, MN, United States
Stoll, James R., Maple Grove, MN, United States
PA Kellogg Company, Battle Creek, MI, United States (U.S. corporation)
PI US 36067 19990126
US 5026689 19910625 (Original)
AI US 1995-547679 . 19951018 (8)
US 1989-330245 19890329 (Original)
RLI Continuation of Ser. No. US 1992-924918, filed on 5 Aug 1992, now abandoned
DT Reissue
FS Granted
LN.CNT 846
INCL INCLM: 514/057.000
INCLS: 424/439.000; 424/441.000; 426/002.000; 426/003.000; 426/560.000;
426/620.000; 426/621.000; 426/800.000; 426/804.000; 426/808.000;
514/054.000
NCL NCLM: 514/057.000
NCLS: 424/439.000; 424/441.000; 426/002.000; 426/003.000; 426/560.000;
426/620.000; 426/621.000; 426/800.000; 426/804.000; 426/808.000;
514/054.000
IC [6]
ICM: A23L001-42
ICS: A23L001-29; A21D008-00; A21D013-00
EXF 424/195.1; 424/439; 424/441; 426/2; 426/3; 426/800; 426/804; 426/808;
426/560; 426/621; 514/54; 514/57

*↓ cholesterol
↓ due to soluble fiber*

L7 ANSWER 7 OF 13 USPATFULL
AN 96:22875 USPATFULL
TI Anion exchange resin compositions containing almond paste for taste improvement
IN Andre, James R., Cincinnati, OH, United States
Colliopoulos, John A., Cincinnati, OH, United States
PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)
PI US 5500190 19960319
AI US 1993-127285 19930923 (8)
RLI Continuation of Ser. No. US 1992-855327, filed on 20 Mar 1992, now abandoned
DT Utility
FS Granted
LN.CNT 699
INCL INCLM: 424/078.100
INCLS: 424/078.010
NCL NCLM: 424/078.100
NCLS: 424/078.010
IC [6]
ICM: A61K031-78
ICS: A61K031-785
EXF 424/78.01; 424/78.12; 424/78.08; 424/78.1; 424/78.16
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 8 OF 13 USPATFULL
AN 93:91435 USPATFULL
TI Compositions containing **psyllium**
IN Cregier, Melissa M., Cincinnati, OH, United States
Colliopoulos, John A., Cincinnati, OH, United States
PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)
PI US 5258181 19931102
AI US 1992-844341 19920302 (7)
DT Utility
FS Granted
LN.CNT 453
INCL INCLM: 424/195.100
INCLS: 514/024.000; 514/057.000; 514/824.000; 426/074.000
NCL NCLM: 424/738.000
NCLS: 426/074.000; 514/024.000; 514/057.000; 514/824.000
IC [5]
ICM: A61K035-78
EXF 424/195.1; 514/25; 514/57; 514/824; 426/74

L7 ANSWER 9 OF 13 USPATFULL
AN 92:104784 USPATFULL
TI Compositions containing **psyllium**
IN Andre, James R., Cincinnati, OH, United States
Colliopoulos, John A., Cincinnati, OH, United States
PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)
PI US 5173296 19921222
AI US 1992-857688 19920325 (7)
RLI Continuation of Ser. No. US 1990-614655, filed on 16 Nov 1990, now abandoned
DT Utility
FS Granted
LN.CNT 468
INCL INCLM: 424/195.100
INCLS: 426/093.000; 426/103.000; 426/660.000
NCL NCLM: 424/738.000
NCLS: 426/093.000; 426/103.000; 426/660.000
IC [5]

ICM: A61K035-78
ICS: A23G003-00; A23L001-36
EXF 424/195.1; 426/93; 426/103; 426/660

L7 ANSWER 10 OF 13 USPATFULL
AN 92:53101 USPATFULL
TI Compositions containing **psyllium**
IN Piatt, David M., Cincinnati, OH, United States
Courts, Julia M., Cincinnati, OH, United States
Fox, Mary M., Fairfield, OH, United States
PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S.
corporation)
PI US 5126150 19920630
AI US 1990-590982 19901001 (7)
DT Utility
FS Granted
LN.CNT 751
INCL INCLM: 426/094.000
INCLS: 424/439.000; 426/096.000; 426/549.000; 426/574.000; 426/804.000;
514/023.000; 514/892.000
NCL NCLM: 426/094.000
NCLS: 424/439.000; 426/096.000; 426/549.000; 426/574.000; 426/804.000;
514/023.000; 514/892.000
IC [5]
ICM: A21D013-00
ICS: A21D008-00; A21D013-08; A23L001-29
EXF 426/574; 426/804; 426/549; 426/94; 426/96; 424/439; 514/23; 514/892

L7 ANSWER 11 OF 13 USPATFULL
AN 91:50460 USPATFULL
TI R-T-E cereal with **psyllium**
IN Ringe, Mitchell L., Maple Grove, MN, United States
Stoll, James R., Maple Grove, MN, United States
PA General Mills, Inc., Minneapolis, MN, United States (U.S. corporation)
PI US 5026689 19910625
AI US 1989-330245 19890329 (7)
DT Utility
FS Granted
LN.CNT 733
INCL INCLM: 514/057.000
INCLS: 424/439.000; 424/441.000; 426/002.000; 426/003.000; 426/560.000;
426/620.000; 426/621.000; 426/800.000; 426/804.000; 426/808.000;
514/054.000
NCL NCLM: 514/057.000
NCLS: 424/439.000; 424/441.000; 426/002.000; 426/003.000; 426/560.000;
426/620.000; 426/621.000; 426/800.000; 426/804.000; 426/808.000;
514/054.000
IC [5]
ICM: A23L001-42
ICS: A23L001-29; A21D008-00; A21D013-00
EXF 426/2; 426/3; 426/800; 426/804; 426/808; 426/560; 426/620; 426/621;
514/54; 514/57; 424/195.1; 424/439; 424/441

L7 ANSWER 12 OF 13 USPATFULL
AN 89:93995 USPATFULL
TI Confectionery delivery system for mineral supplements
IN Yang, Robert K., Randolph, NJ, United States
Sharma, Shri C., Mendham, NJ, United States
Sheu, Shan-Shan, Parsippany, NJ, United States
Shaw, James J., Morristown, NJ, United States
PA Warner Lambert Co., Morris Plains, NJ, United States (U.S. corporation)
PI US 4882154 19891121
AI US 1988-257497 19881013 (7)
RLI Division of Ser. No. US 1985-811601, filed on 20 Dec 1985, now patented,

Pat. No. US 4778676
DT Utility
FS Granted
LN.CNT 654
INCL INCLM: 424/440.000
INCLS: 424/441.000; 424/465.000; 424/484.000; 424/499.000; 424/476.000;
424/498.000; 424/502.000; 514/948.000; 514/960.000
NCL NCLM: 424/440.000
NCLS: 424/441.000; 424/465.000; 424/476.000; 424/484.000; 424/498.000;
424/499.000; 424/502.000; 514/948.000; 514/960.000
IC [4]
ICM: A61K009-20
ICS: A61K009-28
EXF 424/440; 424/441; 424/476; 424/498; 424/502
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 13 OF 13 USPATFULL
AN 88:53690 USPATFULL
TI Crunchy, highly palatable, bulk-increasing, dietary **fiber supplement** composition
IN Moskowitz, Alan H., Budd Lake, NJ, United States
PA Warner-Lambert Company, Morris Plains, NJ, United States (U.S. corporation)
PI US 4766004 19880823
AI US 1986-944144 19861219 (6)
DT Utility
FS Granted
LN.CNT 636
INCL INCLM: 426/658.000
INCLS: 424/439.000; 426/613.000; 426/618.000; 426/804.000
NCL NCLM: 426/658.000
NCLS: 424/439.000; 426/613.000; 426/618.000; 426/804.000
IC [4]
ICM: A23L001-29
EXF 426/93; 426/804; 426/631; 426/658; 424/439

=> s L7 1-13 std, kwic
MISSING OPERATOR L7 1-13
The search profile that was entered contains terms or nested terms that are not separated by a logical operator.

=> d L7 1-13 std, kwic

L7 ANSWER 1 OF 13 PROMT COPYRIGHT 2002 Gale Group

TX iso-BUTYLIDENE DIUREA. To clear use as a non-protein nitrogen source for beef cattle, which would be recommended as a protein **supplement** for range cattle or under controlled feeding conditions where supplemental nitrogen is needed to meet protein requirements of weaning calves, . . .
SELENIUM. . . . a bolus containing elemental selenium to be given to beef cattle over three months of age as a nutritional selenium **supplement**. University of California (Davis) Cooperative Extension Service, Dec. 29, 1987 (Jan. 4, 1988, Page 65).
ASPEN. To affirm GRAS status of ground whole aspen and ground aspen parts in animal feed. Aspen Fiber, Inc. and Fiber For, Inc. petition filed July 28, 1978 (July 31, 1978, Page 46). Amended Aug. 16, 1979. Withdrawn Sept. 30 (Sept.. . .).
SELENIUM. To affirm sodium selenite or selenate as GRAS when used in animal feeds as a nutritional **supplement**, replacing the [section] 573.920 food additive order for selenium. American Feed Manufacturers Association June 29, 1984 (July 2, 1984, Page 35). . . .
COLLAGEN FIBER. To affirm GRAS use as an ingredient in human food. Teepak, Dec. 3, 1993, as reprinted June 30, 1994 (Dec.. . .).

OAT HULL FIBER using alkaline hydrogen peroxide as a direct food ingredient. Canadian Harvest USA L.P., Jan. 31, 1994 (Feb. 7, 1994, Page. . .

PSYLLIUM SEED HUSK GUM. To affirm GRAS status for use in grain-based foods. Kellogg, Feb. 8, 1990 (Feb. 12, 1990, Page. . .

SUGAR BEET FIBER. To affirm GRAS status as a direct human food ingredient. Delta Fibre Food, April 21, 1992 (April 27, 1992, Page. . .

ASCORBIC ACID. To issue [section]184.1301 to affirm GRAS status as an antioxidant, curing and pickling agent, **flavoring agent** and adjuvant, nutrient **supplement**, pH control agent, and processing aid in foods generally and in infant formula. FDA proposal Jan. 14, 1983 (Jan. 17, . . .

BIOTIN. To issue [section]184.1159 to affirm GRAS status as a nutrient **supplement** in special formula used for weight control and in infant formula. FDA proposal Jan. 14, 1983 (Jan 17, 1983; Page. . .

CALCIUM . . . issue [section]184.1214 to affirm GRAS status as a dough conditioner, firming agent, flour-treatment agent, fortification aid, humectant, leavening agent, nutrient **supplement**, pH control agent, and texturizer. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page 57).

CALCIUM PHOSPHATE, MONOBASIC. To issue [section]184.1215 to affirm GRAS status as a dough strengthener, firming agent, **flavoring agent**, formulation aid, leavening agent, nutrient **supplement**, pH control agent, stabilizer and thickener, and synergist. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page 57).

CALCIUM PHOSPHATE, TRIBASIC. To issue [section]184.1216 to affirm GRAS status as an anticaking agent, curing agent, flavor enhancer, formulation aid, nutrient **supplement**, pH control agent, stabilizer and thickener, surface-finishing agent, synergist, and texturizer. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page. . .

CALCIUM PYROPHOSPHATE. To issue [section]184.1223 to affirm GRAS status as a nutrient **supplement** and pH control agent. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page 57).

CASEIN, ENZYMATICALLY HYDROLYZED. To issue [section]184.1247 to affirm GRAS status as a nutrient **supplement** in foods and infant formulas. FDA proposal Dec. 8, 1983 (Dec. 12, 1983, Page 43).

ERYTHORBIC ACID. To issue [section]184.1041 to affirm GRAS status as an antioxidant, curing and pickling agent, **flavoring agent** and adjuvant, and processing aid in baked goods and baking mixes, nonalcoholic beverages and beverage bases, fats and oils, fruits. . .

ETHYL FORMATE. To issue [section]184.1295 to affirm GRAS status as a **flavoring agent** and adjuvant. FDA proposal March 27, 1979 (April 2, 1979, Page 40).

GUAR GUM. To amend [section]186.1839 to delete purity specifications. FDA proposal June 25, 1982 (June 28, 1982, Page 34).

METHYLCELLULOSE. To issue [section]184.1480 to affirm GRAS status as a **flavoring agent** and adjuvant, stabilizer and thickener, formulation aid, surface-acting agent, and texturizer; with specific maximum use limits. FDA proposal Feb. 23, . . .

MIXED TOCOPHEROL CONCENTRATE. To issue [section]184.1894 to affirm GRAS status as an antioxidant and nutrient **supplement**. FDA proposal Oct. 27, 1978 (Oct. 30, 1978,

PHOSPHORIC ACID. To issue [section]184.1073 to affirm GRAS status as a flavor enhancer, **flavoring agent**, pH control agent, sequestrant, stabilizer and thickener, and synergist. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page 57)

POTASSIUM PHOSPHATE, DIBASIC. To issue [section]184.1638 to affirm GRAS status as an emulsifier, nutrient **supplement**, pH control agent, and stabilizer and thickener. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page 57).

POTASSIUM PHOSPHATE, MONOBASIC. To issue [section]184.1639 to affirm GRAS status as a nutrient **supplement**, pH control agent, and sequestrant. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page 57).

POTASSIUM PHOSPHATE, TRIBASIC. To issue [section]184.1639a to affirm

GRAS status as a nutrient **supplement**, pH control agent, and sequestrant. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page 57).

POTASSIUM SORBATE. To issue [section]184.1640 to affirm GRAS status as an antimicrobial agent, **flavoring agent** and adjuvant, and pH control agent. FDA proposal March 10, 1978 (March 13, 1978, Page 45).

SODIUM ASCORBATE. To issue [section]184.1731 to affirm GRAS status as an antioxidant, curing and pickling agent, and nutrient **supplement** in foods and in infant formula. FDA proposal Jan. 14, 1983 (Jan. 17, 1983, Page 20).

SODIUM CARBOXYMETHYLCELLULOSE. To issue [section]184.1745 to affirm GRAS use as an anticaking and free-flow agent, emulsifier and emulsifier salt, **flavoring agent** and adjuvant, formulation aid, processing aid, stabilizer and thickener, surface-active agent, and texturizer. FDA proposal Feb. 23, 1979 (Feb. 26, . . .).

SODIUM DIACETATE. To issue [section]184.1754 to affirm GRAS status as an antimicrobial agent, **flavoring agent**, and pH control agent. FDA proposal April 3, 1979 (April 9, 1979, Page 36).

SODIUM HEXAMETAPHOSPHATE. To issue [section]184.1760 to affirm GRAS status as a curing agent, dough strengthener, emulsifier, firming agent, flavor enhancer, **flavoring agent**, humectant, nutrient **supplement**, pH control agent, processing aid, sequestrant, stabilizer and thickener, surface-active agent, synergist, and texturizer. FDA proposal Dec. 18, 1979 (Dec.. . .).

SODIUM PHOSPHATE, DIBASIC. To issue [section]184.1779 to affirm GRAS status as a curing agent, emulsifier, **flavoring agent**, humectant, nutrient **supplement**, pH control agent, processing aid, stabilizer and thickener, surface-active agent, surface-finishing agent, and texturizer. FDA proposal Dec. 18, 1979 (Dec.. . .).

SODIUM PHOSPHATE, MONOBASIC. To issue [section]184.1780 to affirm GRAS status as an antioxidant, emulsifier, flavor enhancer, formulation aid, leavening agent, nutrient **supplement**, pH control agent, stabilizer and thickener, and texturizer. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page 57).

SORBIC ACID. To issue [section]184.1089 to affirm GRAS status as an antimicrobial agent and **flavoring agent** and adjuvant. Calcium sorbate and sodium sorbate would be deleted from GRAS list because of lack of use data. FDA. . . .

TETRAPOTASSIUM PYROPHOSPHATE. To issue [section]184.1870 to affirm GRAS status as an antioxidant curing agent, emulsifier, formulation aid, humectant, leavening agent, nutrient **supplement**, pH control agent, sequestrant, stabilizer and thickener, surface-active agent, and synergist. FDA proposal Dec. 18, 1979 (Dec. 24, 1979, Page. . .).

dl-TOCOPHEROL. To issue [section]184.1891 to affirm GRAS status as a nutrient **supplement**. FDA proposal Oct. 27, 1978 (Oct. 30, 1978, Page 28).

d-a-TOCOPHERYL ACETATE. To issue [section]184.1896 to affirm GRAS status as a nutrient **supplement**. FDA proposal Oct. 27, 1978 (Oct. 30, 1978, Page 28).

dl-a-TOCOPHERYL ACETATE. To issue [section]184.1897 to affirm GRAS status as an antioxidant and nutrient **supplement**. FDA proposal Oct. 21, 1978 (Oct. 30, 1978, Page 28).

d-a-TOCOPHERYL ACID SUCCINATE. To issue [section]184.1899 to affirm GRAS status as a nutrient **supplement**. FDA proposal Oct. 27, 1978 (Oct. 30, 1978, Page 28).

ZINC OXIDE. To issue [section]184.1891 to affirm GRAS status as a nutrient **supplement** in breakfast cereals, dairy product analogues, and plant protein products, with specific maximum limits. FDA proposal Oct. 26, 1982 (Nov.. . .).

L7 ANSWER 2 OF 13 USPATFULL

AN 2002:322113 USPATFULL

TI Morinda citrifolia (Noni) enhanced animal food product

IN Wadsworth, John J., Orem, UT, UNITED STATES

Story, Stephen P., Alpine, UT, UNITED STATES
Jensen, Claude Jarkae, Cedar Hills, UT, UNITED STATES

PI US 2002182276 A1 20021205
AI US 2001-836881 A1 20010417 (9)
DT Utility
FS APPLICATION
LN.CNT 937
INCL INCLM: 424/765.000
INCLS: 424/769.000
NCL NCLM: 424/765.000
NCLS: 424/769.000
IC [7]
ICM: A61K035-78
SUMM . . . food products. Specifically, the present invention relates to an improved animal food product and composition enhanced with **Morinda citrifolia** dietary **fiber**.
SUMM . . . citrifolia fruit juice and pulp is obtained, using the process as described below. Subsequently the resulting fruit juice and dietary **fiber** is added to an animal food product for providing significant health advantages over prior art animal food products.
SUMM [0015] To produce the dietary **fiber**, the wet pulp is filtered from the juice, wherein the wet pulp has a **fiber** content of from about 10 to 40 percent, by weight. The wet pulp is preferably pasteurized at a temperature of. . . Morinda citrifolia pulp preferably has a moisture content in the range from 0.1 to 15 percent by weight and a **fiber** content in the range from 0.1 to 30 percent by weight.
SUMM [0016] The Morinda citrifolia pulp can be further processed into a high **fiber** dietary product containing additional ingredients, such as a supplemental dietary **fiber**, a sweetener, a flavoring agent, coloring agent, and/or a nutritional ingredient.
SUMM . . . pulp contains protein from the Morinda citrifolia plant at a concentration typically from 0.1 to 15 percent by weight, and **fiber** at a concentration from 0.1 to 20 percent by weight. Additional ingredients are preferably mixed to the dried juice and. . .
SUMM . . . carbohydrates comprise Morinda citrifolia present in an amount by weight from about 3 to 7 percent of the total dietary **fiber** contained within the animal food product.
SUMM . . . step of feeding the animal a diet of an animal food product containing an effective amount of Morinda citrifolia dietary **fiber** comprising 3 to 7 percent by weight of the total dietary **fiber** composition contained therein.
SUMM [0026] I. General Discussion of Morinda citrifolia Dietary **Fiber**
SUMM [0027] The present invention is directed to fruit juice and dietary **fiber** from the Indian mulberry (*Morinda citrifolia*), or Noni, plant. The **fiber** is obtained as a byproduct of the production of Morinda citrifolia juice. The specific methods and procedures used to obtain the Morinda citrifolia dietary **fiber** may be found in co-pending application Ser. No. _____ filed on _____, which is incorporated by reference herein.
SUMM . . . least once and up to 10 times to remove any juice from the pulp. The wet pulp typically has a **fiber** content of 10 to 40 percent by weight. The wet pulp is preferably pasteurized at a temperature of 181° F. (83° C.) minimum and then packed in drums for further processing or made into a high **fiber** product.
SUMM . . . 15 percent by weight and more preferably from 5 to 10 percent by weight. The dried pulp preferably has a **fiber** content in the range from 0.1 to 30 percent by weight, and more preferably from 5 to 15 percent by. . .
SUMM [0035] The high **fiber** product typically includes, but is not limited to, wet or dry Morinda citrifolia pulp, supplemental **fiber** ingredients, water, sweeteners, flavoring agents, coloring

agents, and nutritional ingredients. The supplemental fiber ingredients can include, but are not limited to plant based fiber products, either commercially available or developed privately. Examples of some typical fiber products are guar gum, gum arabic, soy bean fiber, oat fiber, pea fiber, fig fiber, citrus pulp sacs, hydroxymethylcellulose, cellulose, seaweed, food grade lumber or wood pulp, hemicellulose, etc. Other supplemental fiber ingredients may be derived from grains or grain products. The concentrations of these other fiber raw materials typically range from 0 up to 30 percent, by weight, and more preferably from 10 to 30 percent. . .

SUMM . . . and compounds at concentrations from 0 up to 10 percent by weight. Examples of vitamins one can add to the fiber composition include, but are not limited to, vitamins A, B1 through B12, C, D, E, Folic Acid, Pantothenic Acid, Biotin, etc. Examples of minerals and trace elements one can add to the fiber composition include, but are not limited to, calcium, chromium, copper, cobalt, boron, magnesium, iron, selenium, manganese, molybdenum, potassium, iodine, zinc, . . .

SUMM . . . juice and pulp can also be dried with other ingredients, such as those described above in connection with the high fiber product. The typical nutritional profile of the dried juice and pulp is 1 to 20 percent moisture, 0.1 to 15 percent protein, 0.1 to 20 percent fiber, and the vitamin and mineral content.

SUMM [0060] Fiber may or may not be fermented--broken down into short-chain fatty acids--by bacteria in an animal's intestines. Highly fermentable fiber sources, such as vegetable gums, provide high amounts of short-chain fatty acids. Moderately fermentable fibers, such as beet pulp, provide. . .

SUMM [0061] Selected fibers comprising the total dietary fiber content may comprise: Morinda citrifolia dietary fiber, apple pomace, barley, beet pulp, brewers rice, brown rice, carrageenan, carrots, cellulose, citrus pulp, corn, corn meal, corn grits, ground yellow corn, corn bran, dried whey, fructooligosaccharides, grain sorghum, gum arabic, gum talha, carob bean gum, guar gum, lactose, mannanoligosaccharides, molasses, oat groats, oatmeal, peanut hulls, pearled barley, peas, pea fiber, pectin, potato, psyllium, rice, rice bran, soybean hulls, sugar, tomato pomace, vegetable gum, wheat, wheat bran, and xanthan gum. However, one ordinarily skilled. . .

SUMM . . . percentages by weight are: Protein from 14% to 50%, usually 20% to 25%; fat from 5% to 25%; carbohydrates, where fiber is typically present in the range of from about 3% to 14%, usually about 5% to 7%; vitamins and minerals. . .

DETD . . . about 22 percent crude protein, about 13 to about 15 percent fat, about 7 to about 12 percent total dietary fiber, and fermentable fibers which have an organic matter disappearance of 15 to 60 percent when fermented by fecal bacteria for. . . 24 hour period, the fibers being present in amounts from about 1 to 11 weight percent of supplemental total dietary fiber. The animal is maintained on the diet for a sufficient period of time to reduce BUN and creatinine levels in. . .

DETD [0073] The fermentable fibers are selected from the group consisting of beet pulp, gum arabic, gum talha, psyllium, rice bran, carob bean gum, citrus pulp, pectin, fructooligosaccharides, mannanoligosaccharides and mixtures thereof. Most preferably, the fermentable fibers are beet. . .

DETD . . . formulations that comprise chicken meat as the major ingredient, rice as the predominant (or sole) grain source, fruit and/or vegetable fiber as the primary or sole fiber source, unique fat and antioxidant blend, vitamins, herbs and spices, carotenoids, and no corn or artificial colors, preservatives, flavors or. . .

DETD . . . (ii) rice as the primary grain source; (iii) unique antioxidant blend; (iv) unique fat blend; (v) organic minerals; (vi) unique **fiber** blend; (vii) specific combinations of herbs and species; (viii) no added artificial colors or preservatives, flavors or sugars; and (ix). . .

DETD . . . herbs (including rosemary); (5) a fat blend including canola oil, salmon oil and evening primrose oil; (6) fruit and/or vegetable **fiber** rather than grains, such as tomato pomace, as the primary **fiber** source; (7) herbs and spices including spearmint, ginger, ginseng, ginkgo, parsley and Yucca schidigera extract; and (8) kibble size, shape, . . .

DETD . . . response and improving the overall health of companion animals, such as felines and dogs, is achievable through a pet food **supplement** and process which includes beneficial amounts of β -carotene in the animal's diet. Some studies have reported only low to undetectable. . .

DETD . . . about 1:1 and is preferably about 1.2:1 to 1.3:1. The composition further comprises a source of protein, a source of **fiber**, and a source of fat.

DETD [0087] Some compositions use reduced **fiber** and fat as methods to help alleviate the diarrhea. Others use high quantities of cellulose **fiber** to overwhelm the gastrointestinal tract with an insoluble **fiber**. The end product of this approach is an increase in fecal bulk.

DETD . . . animal food product that is capable of enhancing any specific composition or formulation by the addition of Morinda citrifolia dietary **fiber**. As such, several Examples have been provide, which are discussed below, wherein Morinda citrifolia dietary **fiber** has been added to a specific composition of ingredients to create an enhanced and beneficial animal food product.

DETD [0090] III. Morinda citrifolia Dietary **Fiber** Enhanced Animal Food Product

DETD [0092] The present invention features an animal food product containing an amount or percent by weight of Morinda citrifolia dietary **fiber** as part of the total dietary **fiber** content in an animal food product. The Morinda citrifolia is added or mixed into the animal food product composition, along. . .

DETD . . . should recognize that other ingredients may be added, that are not listed here, and included with the Morinda citrifolia dietary **fiber** to complete the pet food formulation or composition. This especially becomes evident when one considers the many different types of. . . animal or a particular companion animal altogether. As such, the concentration or percent by weight of the Morinda citrifolia dietary **fiber**, as well as any of the other ingredients, may be increased or decreased as needed.

DETD [0101] In an alternative embodiment, the Morinda citrifolia dietary **fiber** may be contained in various other animal food products, such as pet food snack, biscuits, etc.

CLM What is claimed is:

18. The animal food product of claim 1, wherein said Morinda citrifolia is of the dietary **fiber** type.

L7 ANSWER 3 OF 13 USPATFULL
AN 2002:21854 USPATFULL
TI Method of hydration; infusion packet system(s), support member(s), delivery system(s), and method(s); with business model(s) and Method(s)
IN Stillman, Suzanne Jaffe, Los Angeles, CA, UNITED STATES
PI US 2002012689 A1 20020131
AI US 2001-963209 A1 20010926 (9)
RLI Continuation-in-part of Ser. No. WO 2001-US9171, filed on 21 Mar 2001,
UNKNOWN
PRAI US 2000-192243P 20000321 (60)
DT Utility

FS APPLICATION
LN.CNT 4740
INCL INCLM: 424/439.000
INCLS: 424/738.000; 514/054.000
NCL NCLM: 424/439.000
NCLS: 424/738.000; 514/054.000
IC [7]
ICM: A61K035-78
ICS: A61K047-00; A61K031-715
AB . . . or partially dissolvable, edible, transparent, opaque, decorated, etc. Further, including of one or more: color(s), flavor(s), aroma(s), pharmaceutical(s), nutraceutical(s), dietary supplement(s), enzyme(s), pre/pro-biotic(s), amino-acid(s), soluble-fiber(s), diagnostic agent(s) etc. regardless of form, +/- effervescence, +/- uniform/controlled-release encapsulations into liquid for humans and/or animals. Enveloping material may. . .
SUMM [0022] 3. SOLUBLE FIBER: It is well known, and accepted in the general health professional community, that fiber is absolutely essential for optimal health. Further dietary fiber, mainly soluble fiber, has been stressed by several health organizations of the Federal Government. The Dietary Guidelines for Americans published jointly by the. . . Agriculture and Health and Human Services, and the National Cancer Institute recommend that all American's increase their daily intake of fiber. Health care professionals conclude that the American diet provides only about half of the suggested daily requirement of 25-35 grams.
SUMM [0025] 6. INGREDIENT INFORMATION: Information, ergo knowledge, as related to some valuable scientifically proven agents, other than soluble fiber, demonstrating to the reader the importance/need of new delivery vehicles as well as new business methods.
SUMM . . . dehydrated society but we are a society of overly refined foods presenting very little if any in the way of fiber. While there is both insoluble and soluble fiber, the later is what is addressed here. Both the importance of water and soluble fiber are detailed in U.S. Pat. No. 6,248,390 to same inventor, Stillman, titled Fiber-Water: Water containing soluble fiber which patent is incorporated herein by reference.
SUMM . . . invention in total and/or in part has been fabricated for use in liquid; more specifically water, and hopefully when possible Fiber-Water.TM.. Regardless of the liquid used, and with the existence of Fiber-Water (test marketed under FiberWater.TM., PerformanceWater.TM. by FiberWater International during the past year and a half) the invention may be so modified as to include, when desired, one or more additional soluble fibers thus adding and enriching the invention Fiber-Water (Performance-Water) and/or water, and/or any opaque and or clear liquid (mainly water) but also milk regardless of source (cow, goat,. . .).
SUMM [0052] 3. Soluble Fiber
SUMM [0053] Unquestionably as a society, we are suffering from a deplorable lack of dietary fiber. We are constantly warned by the medical profession and other experts that this lack of fiber can, and does, kill. Our diets are replete with "empty" calories--refined foods loaded with fats and sugars--and contain few whole foods. When it comes to fiber, many believe that a daily bowl of cereal is adequate. Our supermarkets and pantries are stuffed with brightly packaged, overly refined, and prepared foods that are usually fiber-free or very low in fiber. The presence or absence of dietary fiber greatly influences one's ability to expel solid wastes. It has been estimated that about one in 19 individuals in our society has a health condition that requires special attention. In many cases, this makes the need for adequate fiber and water, even more important to these individuals. Due to modern medicine's success in combating contagious disease, and with a. . .
SUMM [0054] Fiber or "roughage" is a component of food that remains

undigested as it passes through the gastrointestinal system. The vast majority of dietary **fiber** consists of polysaccharides of plant origin. The most obvious **fiber** is the cellulosic wall that surrounds plant cells. Many of these cells are actually called "fibers", hence the name "**fiber**" for this dietary component. However, there are actually two forms of **fiber**: insoluble **fiber**--the classic cellulosic material, and soluble **fiber**--water soluble polysaccharides that are not digested by human or carnivore digestive systems. Both types of **fiber** bind considerable water and, thus, have a softening effect on the stool. However, soluble **fiber** may, depending on the precise polysaccharides involved, be metabolized or partially metabolized directly by bacteria in the colon. Both type. . . . gastrointestinal tract thus speeding transit time of wastes and lowering the risk of acute and chronic medical problems. Like water, **fiber** is essential for human health and is not metabolized by humans.

- SUMM [0055] It has been discovered that dietary **fiber** appears to moderate the rate at which sugars and fats are absorbed from the intestine. The exact reason for this. . . . important in the managing of diabetes and may also help prevent adult onset diabetes. In the case of fats, the **fiber** seems to help prevent damaging levels of cholesterol in the blood. This seems to be due to a binding of bile salts and cholesterol to the **fiber** so that these materials are excreted with the feces rather than being absorbed or reabsorbed. Studies show adequate **fiber** clearly lowers the risk of heart disease and tends to bind toxins, including toxic metals, allowing them to exit safely. . . .
- SUMM [0056] Soluble **fiber** is now known to address various forms of cancer such as prostate, rectal, and colon cancer. Reuters (London) Jun. 26, 2001 News report stated: High **fiber** diet can cut cancer risk of colorectal cancer by 40% according to Dr. Sheila Bingham of the Dunn Human Nutrition. . . .
- SUMM [0057] Further soluble **fiber** has been shown to stabilize blood sugar by moderating the rate of carbohydrate absorption from the digestive tract and thereby. . . .
- SUMM [0058] Soluble **fiber** is known to retard the absorption of lipids and lower serum cholesterol and triglycerides, thus reducing the risk of heart. . . .
- SUMM [0059] Soluble **fiber** supports the good gut micro-flora and supports regularity thus minimizing the absorption of potentially dangerous toxins (e.g., carcinogens and heavy metals); also, soluble **fiber** binds to bile salts and help decrease the risk of gallbladder disease, while also serving to support and promote bowel. . . .
- SUMM [0060] Additionally arrabinogalactan, a non-starch polysaccharide (NSP) has been classified as a dietary **fiber** by the Food and Drug Administration (FDA) since it resists digestion by enzymes of the saliva and the small intestine.. . . .
- SUMM [0061] Of specific importance to diabetics high soluble **fiber** intake improves glycemic control, as evidences by decreases in the mean daily postprandial rise in glucose. (The New England Journal of Medicine, May 11, 2000, p. 1392-1398.) Conclusions: A high intake of dietary **fiber**, particularly of the soluble type, above the level recommended by the American Diabetic Association (ADA), improves glycemic control, decreases hyper-insulinemia,. . . .
- SUMM [0062] Soluble **fiber** comes from a wide range of plant sources. Water-soluble plant pectins and pectic materials, galactomannans, arabanogalactans and water-soluble hemicelulose can act as soluble **fiber**. Many plant "mucilages," gums, and soluble polysaccharides found in grains, seeds, or stems such as *psyllium*, *guar*, *oat* (beta glucans), *astragalus* (gum traganth), *gum ghatti*, *gum karaya* (*Sterculia* gum), and *gum acacia* are also soluble **fiber**. Algal polysaccharides such as agar or carrageenan also behave as soluble **fiber** as do other indigestible

carbohydrates, such as maltodextrins or dextrins, produced by chemical or enzymatic digestion (e.g., partial hydrolysis) of starch, gums and other carbohydrate polymers. Soluble cellulosic ethers and other derivatives such as carboxymethyl cellulose behave as soluble fiber as do indigestible carbohydrate polymers artificially prepared using bacterial enzymes. Non-digestible storage carbohydrates such as inulin are also important soluble fibers. A number of companies are now providing an entire range of "soluble fiber" materials. For example, TIC Gums of Belcamp, Md., Novartis Nutrition of Minneapolis, Minn. and Imperial Sensus of Sugar Land, Tex. provide soluble fiber compounds of food grade.

- SUMM [0063] Soluble "fiber" is known to provide a novel opportunity for improving the characteristics of fiber-poor refined foods. Fiber was removed from food products because in many cases it made the foods coarse, unpalatable or difficult to process. Adding insoluble bran or other similar fiber to foods may provide more roughage but can also degrade the favorable properties of the foods. For example, cakes or pastries made from flours high in insoluble fiber may have inferior taste and texture. Excess insoluble fiber may upset the digestion and lead to a number of digestive problems.
- SUMM [0064] On the other hand, soluble fiber is generally well tolerated, often improves the texture, and/or other physical characteristics of the food product and is generally innocuous. Consequently, there are a growing number of food products, ranging from baked goods to "shake-like" beverages, contain added fiber in the form of soluble fiber.
- SUMM [0065] Can we not only restore the benefits of fiber, herein soluble fiber, to our highly refined diet but also significantly affect the final product totally and/or in part by the texture and/or . . .
- SUMM [0067] While the invention does not specifically state that soluble fiber, from one or more sources must be present, it is to be considered "a good idea".
- SUMM . . . inventor has realized that a properly formulated infusion packet is the ideal vehicle for administering nutritional supplements such as soluble fiber either independently, and/or with color, and/or with flavor and/or in consort with other pharmaceutical and/or nutritional additives.
- SUMM . . . of vitamins, minerals, and herbals, the formulations for the infusion packets will be built around the groups commonly known as fiber, pre-biotics, pro-probiotics, antioxidants, amino acids, and both systemic and digestive enzymes.
- SUMM [0107] U.S. Pat. No. 6,180,099 to Paul, (Metagenics), titled, "Method Of Using Immunoglobulin And Fiber-Containing Compositions For Human Health" identifies preferred and beneficial human intestinal microorganisms such as Lactobacillus acidophilus, L. bulgaricus, L. casei, L. . . .
- SUMM [0127] With the information presented below it will be obvious to see the possible combinations of fiber, amino acids, antioxidants, etc. and the like in multiple formulations.
- SUMM . . . individually and/or in combination, aroma, color, pharmaceuticals, nutraceuticals, herbals, pro-biotics, pre-biotics, amino acids, digestive and/or systemic enzymes, anti-inflammatory, diagnostics, soluble fiber(s), and/or any FDA approved dietary supplement(s) by infusing the aforementioned directly into a liquid for immediate use and/or to prepare a concentration for delayed use by . . .
- SUMM . . . system(s) in a daily pack, weekly, monthly etc. with or without a support member. Each can be a separately designed supplement group and travel with the consumer far better than ready mixed bottled drinks. Beyond just the convenience and practicality for . . .
- SUMM . . . one example would be the classification of gums with well researched properties and/or documented health benefits. An example

would be **guar** gum in relation to the control, of diarrhea. With the technology available and the careful crafting of product, agents such. . .

SUMM [0277] d. Emergency sponsored venues and emergency packs especially with the presence of **fiber**; and

SUMM [0330] 31. The invention is concerned with contents of the infusion packet whereby specialized health enhancing ingredients--in particular soluble **fiber(s)** of different sources--are added to the infusion packet(s) system. There are certain fibers that may be incorporated into an edible. . . date of Feb. 22, 2001 to inventor Stillman along with the issued U.S. Pat. No. 6,248,390 titled **FiberWater-Water Containing Soluble Fiber**.

DETD . . . to directions and for a specific period regardless of the venue henceforth mentioned. As an example, one might note soluble **fiber**. If looking to test market, as in the just mentioned ingredient category regardless of specifics, then various combinations of fibers. . .

DETD . . . in the office and/or the little shack shop in the building and/or any venue in the office building one can **supplement** mainly bottled water with a myriad of choices emanating from a small container easily stored and held. If a little. . .

DETD . . . from "Liquid Candy" and in some instances fruit juices, which have a very high sugar content and none of the **fiber** benefits as compared to eating the fresh fruit itself. While milk is an important source of calcium for those who. . .

DETD [0583] While **fiber**, especially soluble **fiber** has be mentioned early on it is necessary to present more information for a further qualification and description of this. . .

DETD [0584] Up until now, one of the problems has been to provide a convenient vehicle for soluble **fiber** especially if it is to be combined with one or more additional additives. The infusion system herein described can provide the ideal vehicle for soluble **fiber** (s). While it is know that packets of soluble **fiber** exist, Metamucil® as one, what is not known is if certain blends and or combinations of fibers can be commingled. . .

DETD . . . very fine powder form. To package those fibers loosely within a packet is not always desirable because some of the **fiber** may adhere to the inside of the packet and or lodging within the folds of the packet especially in the corners. A further negative to the fine **fiber** powder being packaged loosely is that when you rip open the packet it can literally fly all over.

DETD [0586] Therefore, in relation to the presented invention whereby a measured dose of soluble **fiber** can be enclosed in the infusion system is considered ideal. Additionally using this infusion packet system, one more efficiently guarantees that all the **fiber** will be made available and therefore a more accurate dose administered.

DETD [0587] The precise dose, ratio, and/or blend of **fiber(s)** per packet may be determined by the specific need/use of the consumer. While there may be many different choices of. . . fibers, blends, ratios, etc. if there is a specific health condition being targeted then the amount as well as the **fiber** mix will be selected toward that direction. An example would be for diabetics. Additionally, other supportive ingredients, per general wellness,. . .

DETD [0588] Dosages of soluble **fiber** falling between 0.01 and 50+ grams are readily accommodated and function well with either hot or cold liquids other, more traditional, infusion materials can be included. For example, it is relatively simple to produce a packet that provides " **fiber tea**." By introducing hot water to the packet, one rapidly produces a tea beverage with the added benefits of soluble **fiber**

DETD [0589] The tealeaves and the soluble **fiber** (depending on the **fiber** type) may be mixed together within the infusion packet. Alternatively, the packet can have a plurality of compartments so that the tea (or other ingredients) can be kept separate from the soluble

- fiber** until the actual moment of preparation. It is possible to use several different types of soluble **fiber** and keep them separate in individual compartments. If any of the soluble **fiber** compounds, or additional additives, used are hygroscopic, the entire packet can be sealed in a humidity-proof pouch.
- DETD [0590] Although traditional uses of infusion packets, more commonly known as tea bags require hot or warm water, certain soluble **fiber** carbohydrate materials are very soluble in room temperature and/or cold water as well. Thus, it is possible to provide a soluble **fiber** infusion packet that can be used in cold water.
- DETD [0591] Therefore, by adding soluble **fiber** to the aliquot of constituents used in the infusion packet we are able to address the over-all health benefits of **fiber** along with the specific, somewhat individualistic, properties of the **fiber**(s) selected.
- DETD [0592] Depending on the **fiber**(s) used it may not be appropriate to place them (one or more combined) directly in contact with the other ingredients. . . . the ingredients used, but also the manner as to how they are delivered which may be critical. Depending on the **fiber** used, it may carry with it other unique characteristics, such as serving as a pre-biotic and/or pro-biotic, an immune enhancer, . . .
- DETD . . . large enough to provide efficacious inulin dose (approximately 5 g/day minimum for improved physiological health) as a unique soluble dietary **fiber** and preferred food for healthy intestinal bacteria. (good gut micro-flora such as bifidobacteria and lactobacilli).
- DETD . . . the appearance, stability, and the overall appeal of your finished product but they are also a valuable source of dietary **fiber**.
- DETD . . . here, and to be included in the invention, is to use gums with known functional properties. Literature supports the following: Guar gum improves insulin sensitivity, blood lipids, and blood pressure; American Journal of Clinical Nutrition 56:1061-5; 1992. A study at the University of Minnesota confirmed that with the inclusion of guar gum the viscosity of the contents of the intestines was increased.
- DETD [0602] Further Benefiber® by Novartis is a guar gum used for the treatment of diarrhea.
- DETD [0604] Additional water-soluble flavoring agents and/or sweetening agents can be included to provide a tasty **fiber** beverage that is produced by dropping the infusion packet into other than hot water. Again, the various components may be. . .
- DETD [0611] As example the inventor is most focused on dietary **fiber**, antioxidants, diagnostics, pro-biotics, pre-biotics, digestive and systemic enzymes, yet still remains conscious of the need for vitamins and minerals especially. . .
- DETD [0613] Other than soluble **fiber**, the inventor specifically favors active ingredients, which permit the creation of a beverage containing active ingredients for which there exists. . . Bernstein titled "Method of treatment for carbohydrate addiction." U.S. Pat. No. 5,820,867 to Bewicke titled "General anti-depressant composition for dietary supplement." U.S. Pat. No. 5,741,491 to Jones (Isotechnika Inc. CA) titled "Medicinal composition for diabetes. U.S. Pat. No. 6,025,363 to Giles. . .
- DETD . . . Pat. No. 6,268,011, Jul. 31, 2001, to Hoie (Nutra Pharma (Oslo NO.), titled "Composition and its use as a food supplement for lowering lipids in serum;" U.S. Pat. No. 6,264,997 Jul. 24, 2001, to Yamakoshi, (Kikkoman Corp. (Chiba-Pref, JP) titled "Anti-arterosclerotic. . . liquid food products and process of making;" U.S. Pat. No. 6,261,589, Jul. 17, 2001, to Pearson et al. titled "Dietary supplement nutrient soft drink composition with psychoactive effect."
- DETD . . . and therefore refers to U.S. Pat. No. 6,214,788 to Velazco (Firmenich SA; Geneve CH, titled "Use of cubebol as a flavoring

- agent." The aforesaid patent discloses a method for imparting perfuming, flavoring, or refreshing properties to a composition or product for a. . .
- DETD . . . supplemental product, which may be considered a standalone food in and of itself and/or by virtue of the beneficial ingredients, supplement the ingredients in the packet. The inventor is most interested in the inclusion of active ingredients in confections (candies). U.S.. . .
- DETD [0653] Children have fiber requirements too. Many gums are fiber so that another aspect of the invention is disclosed. The candies can provide fiber, contain additional fibers, and/or additional fiber may be provided by any portion of the infusion packet. This then becomes a significant part of this part of.
- DETD . . . light up, noise making, components that might need a power source such as a battery regardless of size, solar energy, fiber optics, and/or the like.
- DETD . . . of this invention, to have a support member with; not only moveable parts, manually operated, solar energized and/or with multiple fiber optic and/or battery options and/or other power sources, to provide movement, light, or sound: but a variety of other interactive. . .
- DETD . . . set forth. The inventor brings forth the offering of packets with a room temperature and/or cold bottle of water, and/or fiber-water (U.S. Pat. No. 6,248,390 to the same inventor, Stillman) in a dining and/or convenience venue whereby a consumer is offered. . . selected formulations a potential ready to drink (RTD) product can be test marketed while promoting the sale of bottled safe water/fiber-water etc. for hydration purposes and nutritive advantages. The "in venue" container may contain all or any of the pre-described support. . .
- DETD . . . to and in between the teeth. (Yummi Bears by Hero Nutrition {San Juan Capistrano} has become the number one children's supplement brand in the health store channels. In July/August 1998, this company grew 214%. Now the product line is expanding rapidly.
- DETD . . . fruit smoothie which basically costs \$2.00 one can purchase, for an additional fifty-cents each one or more of the following, fiber, protein, vitamins and minerals, antioxidants, etc. This then becomes a very expensive proposition, and certainly does not address a more. . .
- DETD . . . animals; U.S. Pat. No. 6,133,323 to Hayek titled Process for enhancing immune response in animals using β-carotene as a dietary supplement. Additionally, U.S. Pat. No. 5,968,569 to Cavadidi (Nestec S.A., (Vevey CH) titled Pet food product containing probiotics; U.S. Pat. No... . .
- DETD [0796] The inventor is most interested that animals receive more fiber for many reasons and ergo the reader may refer to her U.S. Pat. No. 6,248,390 Fiber-Water: Water containing soluble fiber, for an extended appreciation.
- CLM What is claimed is:
1. An infusion packet for preparing a functional nutraceutical beverage comprising: an aliquot of water-soluble dietary fiber; and a water permeable membrane that envelops said fiber and is sealed so as to form a packet wherein said fiber cannot penetrate said membrane until said packet is immersed in water.
 3. The infusion packet of claim 1, wherein the water soluble dietary fiber is selected from the group consisting of plant mucilage, plant gums, dextrans, maltodextrins, galactomannans, arabanogalactans, beta glucans, cellulose ethers, pectins, pectic material, water-soluble hemicellulose, inulin, alginates, agar, carrageenan, psyllium, guar gum, gum traganth, gum karya, gum ghatti, gum acacia, gum arabic, partially hydrolyzed products thereof and mixtures thereof.

4. The infusion packet of claim 1, wherein said water-soluble fiber is selected to satisfy simultaneously both hydration requirements and fiber requirements when consumed.

. . . beverage comprising the steps of: providing an infusion packet claim 1; and immersing said infusion packet in water whereby said fiber and any other ingredients are dissolved and penetrate the membrane to make a functional nutraceutical beverage.

L7 ANSWER 4 OF 13 USPATFULL
AN 2000:157020 USPATFULL
TI Cereal products with inulin and methods of preparation
IN van Lengerich, Bernhard, Plymouth, MN, United States
Larson, Merle K., Dassel, MN, United States
PA General Mills, Inc., Minneapolis, MN, United States (U.S. corporation)
PI US 6149965 20001121
AI US 1998-5675 19980112 (9)
DT Utility
FS Granted
LN.CNT 751
INCL INCLM: 426/620.000
INCLS: 426/621.000; 426/619.000; 426/622.000; 426/615.000
NCL NCLM: 426/620.000
NCLS: 426/615.000; 426/619.000; 426/621.000; 426/622.000
IC [7]
ICM: A23L001-164
EXF 426/620; 426/619; 426/621; 426/622; 426/615
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB . . . cooked cereal doughs, ready-to-eat cereals and grain based snacks fabricated from such cooked cereal doughs containing high levels of soluble fiber supplied at least in part by inulin or other β -2 fructofuranose. The cereals contain about 0.1 to 17% added inulin.. . .
SUMM . . . present invention relates to food products and to their methods of preparation. More particularly, the present invention relates to high fiber, grain based cereal products and to their methods of preparation.
SUMM . . . items. R-T-E cereals exist in large numbers of varieties. R-T-E cereals, especially whole grain, are known as good sources of fiber. A good description of the literature pertaining to the health discussion on the role of fiber is found in U.S. Pat. No. 4,777,045 (issued Oct. 11, 1988 to Vanderveer et al. and is entitled High Bran. . .
SUMM In view of the health interest in fiber, high fiber cereals are increasingly popular. These cereals contain added levels of fiber sources, especially corn and wheat bran, and range generally from about 2-5 g fiber/oz cereal. Generally, the fiber is predominantly of the insoluble type. Some cereals are formulated from all bran sources and can contain up to 8-10 g/oz fiber. High fiber cereals using purified insoluble fiber sources and artificial sweeteners can even contain as high as 8-13 g fiber/oz of cereal.
SUMM While popular, high fiber cereals are not without disadvantages. The primary concern is with the organoleptic qualities of the R-T-E cereal. Generally, as the concentration of fiber increases, the starchy components decrease, adversely affecting the cereal's organoleptic and physical properties. Cereals high in insoluble fiber are often dry, exhibit short bowl lives and yield highly frangible food pieces.
SUMM Other high fiber food products containing other fiber sources are well known. For example, U.S. Pat. No. 4,568,557, to Becker et al., discloses a snack food product prepared by premixing a dietary

fiber with a food grade oil; premixing a compound coating containing a fractionated fat, sweetener, milk solids, yogurt, and a flavoring agent; blending the two pre-mixtures and adding a cereal product and a dried fruit or nut for flavor; and extruding the. . .

SUMM While most fiber rich R-T-E cereals have higher levels of insoluble fibers, present consumer interest is focused upon cereals containing oat bran which is a rich source of soluble fiber. There is a growing awareness of the health benefits to people associated with soluble fiber consumption, especially reductions in blood serum cholesterol, i.e., antihypercholesterolemic benefits. Unfortunately, cereals high in soluble fibers typically are gummy or. . .

SUMM Several patents teach the use of **psyllium** for use in R-T-E cereals. (See, for example, U.S. Pat. No. 5,026,689 entitled "R-T-E Cereal With Psyllium," issued Jun. 25, 1991 to M. Ringe). **Psyllium** is a good source of soluble fiber. The whole wheat based flake R-T-E cereals therein described are of high eating quality even though containing high levels of soluble fiber by virtue of particular insoluble to soluble fiber ratios. Notwithstanding the improvements in R-T-E cereal flavor and texture, commercial products based upon the '1689 patent have met with. . .

SUMM While it is difficult to provide even a single type of fiber fortified R-T-E cereal, such as a whole wheat flake that exhibits acceptable texture and flavor to consumers, it is even more difficult to provide a wide variety of R-T-E cereals fortified with high levels of soluble fiber.

SUMM The present invention is directed towards the provision of an improved high fiber R-T-E cereal with superior organoleptic attributes or qualities. Surprisingly, the present invention provides such a superior quality high fiber R-T-E cereal which nonetheless contains a high concentration of soluble fiber. The present invention resides in part in the particular selection of inulin as the soluble fiber source.

SUMM Inulin is a well known material long used as a food supplement. Inulin is a carbohydrate material derived from a variety of crops importantly from Jerusalem artichoke and chicory. However, inulin is. . .

SUMM Surprisingly, a wide variety of high soluble fiber R-T-E cereal products can be provided that are almost indistinguishable in taste and texture from their counterparts that are not fortified with fiber when that fiber is supplied by inulin. Such high fiber high quality R-T-E cereals can be provided from cooked cereal doughs that are fortified with soluble fiber provided by inulin within certain concentrations. In its method aspect, the present invention provides methods for preparing such novel R-T-E. . .

SUMM . . . 3 to 10% (i.e., up to about 3 g/oz) of added or supplemental inulin. Notwithstanding concentrations of the inulin soluble fiber and the absence of added fat, the finished fortified cereal products are not only organoleptically desirable but almost indistinguishable from. . .

SUMM . . . to 97%, preferably about 92 to 97% of the cooked cereal dough (dry weight basis) and the balance inulin. Such fiber fortified cooked cereal doughs are useful for fabrication into finished dried grain based food products such as R-T-E cereals and. . .

SUMM The present compositions can optionally include additional or supplemental sources of soluble fiber in addition to inulin. One possible, although expensive, source of soluble fiber is to employ commercially available high methoxyl pectin. While desirable due to its cost and availability, the utilization of pectin aggravates the problems of providing organoleptically acceptable cereal products. Accordingly, when pectin is used to provide additional soluble fiber, generally lower amounts of soluble fiber are preferred. Other useful sources of soluble fiber include

oat bran, guar gum, carboxymethylcellulose, psyllium and mixtures thereof.

SUMM If present, each of these supplemental soluble fiber sources can comprise from about 0.1 to 6% dry weight basis, and, preferably, when used in addition to inulin, about . . .

SUMM Also useful herein are non-cereal fiber sources including cellulose flour, cellulose fiber, sugar beet fiber, etc. Sugar beet fiber can comprise up to 80% total dietary fiber with about 20% soluble fiber and 60% insoluble fiber. If employed, sugar beet fiber can comprise about 0.1 to 5% (dry weight) of the present products.

SUMM . . . dough compositions and dried finished products prepared therefrom can additionally include one or more cereal bran fractions as a supplemental fiber ingredient. Among cereal brans, oat bran is an especially desirable optional ingredient in the present cereal compositions. Oat bran has a fiber fraction in addition to the high cereal or starchy fraction. Oat bran is a concentrated source of a soluble fiber and can comprise at least 6% soluble fiber (about 1.7 g/oz) as well as at least 6% insoluble fiber (about 1.7 g/oz). Accordingly, inclusion of oat bran into the present R-T-E cereal composition simultaneously can provide the present essential starchy cereal component, a supplemental soluble fiber component, and an insoluble fiber component. If desired, the cereal bran ingredient can comprise about 1 to 50% (dry weight) of the cooked cereal dough. High fiber products will preferably contain about 25 to 40% supplemental cereal bran. Low fiber products can preferably contain about 1 to 15% supplemental cereal bran.

SUMM Fiber, especially insoluble fiber, is believed to adversely affect selected mineral and vitamin absorption. Accordingly, in highly preferred embodiments, in particular, the present R-T-E . . .

SUMM . . . dried puffed fried finished cereal products fortified with inulin. Such dried puffed fried finished cereal pieces are especially desirable as fiber fortified snack products. Such products can absorb about 5 to 35% of frying fat during the drying and puffing step.

SUMM . . . present invention can be consumed in a conventional manner to obtain the nutritional and physiological benefits of a high soluble fiber cereal food. A surprising advantage of the present R-T-E cereals is that the fiber is nearly "invisible," that is, even high levels of fiber are barely organoleptically discernible in the finished product.

SUMM . . . dried R-T-E cereal and cereal based snack products fabricated from the inulin fortified cooked cereal doughs herein are useful as fiber fortified food products. Surprisingly, the finished R-T-E cereal and cereal based snack products provided herein are remarkably similar to their. . . Notwithstanding their highly acceptable taste, appearance and texture attributes, the products are nonetheless characterized as having high levels of soluble fiber. Notwithstanding the high levels of soluble fiber, the present finished products are remarkably free of the undesirably slimy mouth feel heretofore associated with finished dried cereal products high in soluble fiber content.

SUMM The measurement of total dietary fiber, soluble fiber , and insoluble fiber is subject to disparate analytical methods and values determined thereby. For purposes of the present invention, "soluble" and "insoluble" fiber values are to be determined by an accepted test procedure for fiber developed by Prosky et al. and described in "Determination of Insoluble, Soluble and Total Dietary Fiber in Foods and Food Products," Journal of the Association of Official Analytical Chemists, Vol. 71, No. 5 (1988) which is. . .

DETD A ready-to-eat cereal composition of the present invention having high levels of soluble fiber is prepared according to the following procedure. A dry blend, a wet blend and a sugar coating composition were

separately. . .

DETD

A.

Dry Base Blend
Ingredients Weight %

Whole wheat	66.92
Inulin	12.40
White wheat bran	
	8.00
Sugar	7.50
Salt	1.50
Guar gum	1.20
Vitamin blend	
	0.40
Trisodium phosphate	
	0.08
	100.00%

DETD The final product has a soluble **fiber** content of 3.3 g/oz and an insoluble **fiber** content of 3.2 g/oz. The total fat content is less than 2%. Upon consumption, the R-T-E cereal will exhibit a. . .

CLM What is claimed is:

1. A food product with supplemental dietary **fiber**, comprising:
A. about 83 to 97% (dry weight) of a cooked cereal dough; B. about 3 to 17% by weight. . .
13. A method for preparing a **fiber** fortified food product comprising the steps of: A. providing a cooked cereal dough; B. fortifying the cooked cereal dough with. . .
32. In a food product fabricated from a cooked cereal dough having a soluble **fiber** content of about 1 to 10 g per ounce, the improvement comprising: at least a portion of the soluble **fiber** being supplied by a β -2 fructofuranose and the food product including a sugar coating, with a percentage of the β -2. . .

L7 ANSWER 5 OF 13 USPATFULL

AN 1999:136753 USPATFULL

TI Fiber and vitamin-fortified drink composition and beverage and method of making

IN Kota, Suresh B., Cupertino, CA, United States

Zhang, Bei, Fairfax, VA, United States

Chau, Tommy, Ashburn, VA, United States

Yang, Robert K., Flushing, NY, United States

Cherukuri, Subraman R., Vienna, VA, United States

Banerjee, Abhijit, Alexandria, VA, United States

PA Fuisz Technologies Ltd., Chantilly, VA, United States (U.S. corporation)

PI US 5976603 19991102

AI US 1998-140380 19980826 (9)

DT Utility

FS Granted

LN.CNT 586

INCL INCLM: 426/590.000

INCLS: 426/072.000; 426/074.000; 426/078.000; 426/443.000; 426/573.000;
426/599.000; 426/658.000

NCL NCLM: 426/590.000

NCLS: 426/072.000; 426/074.000; 426/078.000; 426/443.000; 426/573.000;
426/599.000; 426/658.000

IC [6]

ICM: A23L002-00

EXF 426/72; 426/74; 426/443; 426/78; 426/573; 426/590; 426/599; 426/658

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

TI Fiber and vitamin-fortified drink composition and beverage and method of making

AB A beverage composition has a source of **fiber**, as well as one

or more additional nutrients. The composition is in the form of a shearform matrix as a . . .

SUMM The present invention relates to beverages containing edible **fiber**, and more particularly, to an improved **fiber** drink mix and beverage fortified with nutrients, in particular vitamins.

SUMM **Fiber** from both soluble and insoluble sources is now well recognized as a necessary "nutrient" in a healthy diet. In particular, it is now widely believed that a diet rich in **fiber** from many sources may be instrumental in preventing the development of many types of diseases. Colon cancer, for example, is viewed as highly preventable through maintenance of a **fiber-rich** diet. The U.S. Recommended Daily Allowance (RDA) of dietary **fiber** is approximately 25 grams daily for the average adult. Unfortunately, as is the case with most nutrients, many people do . . . this minimum level. This is because most people do not consume enough of some of the most common sources of **fiber**, namely fresh fruits and vegetables.

SUMM . . . Ingesting these is like swallowing a mouthful of sand and water. Still other formulations, in their attempt to mask the **fiber**, produce a mix which yields a liquid that is far too slimy or too thin and runny. Individuals thereby forego a sound regimen of **fiber** consumption due to the unpleasant nature of many of today's products.

SUMM The problem therefore exists of formulating a suitable **fiber**-rich drink which is pleasant and agreeable. Such a beverage should be easy to mix in water and yield a liquid. . . .

SUMM The biggest obstacle to producing such a beverage is the **fiber** itself. By its very nature, edible fibrous material does not typically dissolve or even mix well in aqueous media. The. . . . These "flash flow" processing techniques and apparatus have not been scaled for use with an ingredient such as raw edible **fiber**, however. The **fiber** itself presents a unique problem. **fiber** particles often tend to be significantly larger than many other types of material processed through a spinning head, thereby greatly increasing the chances for clogging. **fiber** particles also tend to attract highly hydroscopic material such as fructose and sorbitol. This in turn further enhances the possibility. . . . the processing apparatus. Unlike other types of material which may be flash flow processed in a liquid or semi-liquid state, **fiber** is typically not well suited to processing in a liquid medium. Thus, flash flow processing of fibrous material has been. . . .

SUMM It has now been discovered that edible **fiber** may be flash-flow processed with other food-grade materials to yield a novel dry beverage mix and drink. When combined with a liquid such as water, the dry mix yields a highly palatable nutritional **supplement** with a good balance of sweetness and tartness. The novel beverage preferably delivers additional nutrients as well. It is particularly. . . .

SUMM . . . that the dry beverage composition of the invention be in the form of a shearform matrix, hereinafter described. Unlike other **fiber** beverage mixes which are commercially available, the product herein set forth does not clump in water. The ensuing liquid beverage is not gritty and is visually appealing, with minimal or no swirling **fiber** debris. Shearform matrix attributes result in the quick dissolution of all ingredients in the liquid.

SUMM Also provided as part of the invention is a method of providing dietary **fiber** in shearform matrix which comprises subjecting the **fiber** to conditions of flash-flow processing, hereinafter described.

SUMM The novel **fiber** drink mix and beverage of the invention comprises a carrier material as one component. This carrier material is utilized to provide support for, or "piggyback", the hereinafter described **fiber** material during "flash-flow" processing and thereby aid in mixing. Carrier materials are typically chosen from the listing of saccharide materials. . . .

SUMM Further provided as part of the dry beverage mix of the invention is one

or more sources of edible fiber. As that term is used herein, "edible fiber" refers to any source of roughage that is capable of being ingested and processed without harm by animals, in particular man. Fiber from whatever source is therefore suitable, especially plant matter, such as bran from oats, wheat, corn and rice etc., as well as cellulosic material. Husk material may also be preferred. The term "fiber" encompasses what is referred to by the skilled artisan as both "soluble" and "insoluble" fiber. The fiber component of the invention will typically be present in the composition of the invention in quantities chosen by those in . . percentage of RDA within a suitable serving size when combined with a liquid. As a general rule, the amount of fiber should be within the range of about 0.1-20% of the dry weight of the composition. It is especially preferred to utilize fiber within the range of about 10-20%. Unlike with many other raw ingredients that are capable of undergoing the procedure known in the art as flash-flow processing (hereinafter described), it has now been discovered that a maximum loading of fiber in excess of about 20% by weight should preferably be avoided.

SUMM Fiber can be especially troublesome to process into a dry beverage mix because of its tendency to clump and adhere to other materials during mixing. To avoid this problem, it is highly desirable to utilize fiber which is 60 mesh or smaller. Preferably, at least about 80% of the fiber should be capable of passing through a 40 mesh screen. Unlike with many other food-grade materials which are currently flash-flow processed in the art, it has now been discovered that at least in certain embodiments the size of the fiber particles being processed should preferably be as small and unobtrusive as possible.

SUMM . . . media. Proteinaceous material such as gelatins may be useful. Also contemplated are food grade gums such as gum arabic, carrageenan, guar gum, and locust bean gum. Mixtures of any of the foregoing processing aids are also within the scope herein described.. . .

SUMM . . . mixtures thereof, and the like. Chocolate, vanilla and cream flavorings, from whatever derived source, may also be include as the flavoring agent herein.

SUMM . . . also comprise a component thereof. As an example, an edible oil may be utilized to provide encapsulation means for the fiber or other nutrients, hereinafter described. These optional ingredients, either alone or in combination, can typically be included as part of . . .

SUMM In addition to the source of fiber, it is also highly preferred to include one or more additional nutrients or nutritional supplements (including nutraceuticals) as part of. . . the skilled artisan. Of these, an edible source of calcium may be particularly desirable. Typically, the quantity of the nutritional supplement (s) will correspond to an amount generally recognized as both safe and effective by the United States Food & Drug Administration. . .

SUMM . . . preferred embodiment of the invention, it is especially desirable to include vitamin C in an orange-flavored beverage, along with the fiber component. A single serving size of dry beverage mix will therefore preferably contain about 60-75 mg. or so of ascorbic. . .

SUMM . . . Folic acid is an excellent nutrient to also include in the final formulation. The skilled artisan will find that a fiber beverage which delivers up to 100%, or even more, of fiber and one or more vitamins and other vital nutrients in a single serving is a desirable embodiment for the formulation. . .

SUMM . . . may be encapsulated with an oleaginous substance and thereby be preserved for further processing with the other components constituting the fiber-rich beverage mix of the invention.

SUMM The components heretofore described as constituting the fiber-rich beverage composition of the invention are preferably combined and processed through the use of a unique procedure known in the. . .

SUMM . . . enhance the development of these matrix characteristics, it is preferred to process all or most of the ingredients constituting the fiber beverage mix in their dry, non-aqueous state. This advance is unheralded in the art, which has traditionally utilized some copious. . . also produces a dry beverage that when added to water yields a drink which is clumpy and high in unappealing fiber sediment.

SUMM As a result of being processed according to the unique procedures known as flash flow, the fiber product of the invention is produced in dry, particulate form. Small granules, flakes, spicules, powders, particles, fiber and floss, etc. are just some of the many forms of the product which can exit the particular flash-flow apparatus,. . . for example, water. This contributes greatly to the organoleptic characteristics of the final beverage. No more gritty chunks of unprocessed fiber need cause consternation to the consumer. Flash flow not only intimately mixes all components, it provides an increase in surface. . . dissolution in liquid so that a uniform consistency is attained. The consumer need no more gulp down chunky, poorly processed fiber drinks. (It will be appreciated by those skilled in the art that other methods of processing the beverage drink mix. . .

SUMM . . . it is dissolved in amounts of water sufficient to yield a serving thereof. In contrast to the inventive composition, many fiber-based formulations commercially available today require complex, expensive and too often unreliable air-tight and moisture-resistant packaging to guard against ruination of. . .

SUMM To prepare the fiber-based, dry beverage mix for consumption, the user will typically dissolve a pre-set amount in an excess of suitable liquid. Preferably, . . .

SUMM . . . particular daily requirement (RDA) or some fraction thereof. A particularly desirable embodiment will comprise about 25%-50% of the RDA of fiber, along with about 100% of the RDA of one or more additional nutrients, such as vitamin C or a multi-vitamin. . .

DETD A fiber-based dry beverage mix was prepared with components as set forth in TABLE 1 below:

DETD TABLE 1

Fiber (Psyllium Husk Fine)		
	15.7%	
Locust Bean Gum		1
Maltose Corn Syrup Solids 65%		
	40-60	
Guar Gum and Partially Hydrolyzed		
	20-21	
Guar Gum		
Gum Arabic		1
Hydroxylated Lecithin	2	
Orange Flavor Oil (Sunkist)		
	2.5	
Citric Acid		2
Pectin		1
Anatto		0.05
Aspartame		0.65
Multi-Vitamin Complex Pre-Mix*		
	4.5	
Oat Fiber (Snowwhite)	1	
Beta-Carotene		0.2

DETD . . . was described as delicious and refreshing. No gritty or bitter off-taste was discerned. The beverage delivered 5 grams of dietary fiber and about 110-140% RDA of the following vitamins/nutrients: A, C, D, E, K, niacinamide, biotin, folic acid and B complex. . .

CLM What is claimed is:

1. A beverage composition comprising edible fiber and one or

more carrier materials, said composition being in the form of shearform matrix.

2. The beverage composition of claim 1, wherein said **fiber** is in the form of at least one member selected from the group consisting of soluble and insoluble dietary **fiber**.

10. The beverage composition of claim 9, wherein said food grade gum is selected from the group consisting of gum arabic, carrageenan, **guar** gum, and locust bean gum.

16. A method of providing dietary **fiber** in shearform matrix which comprises subjecting said **fiber** to flash-flow processing.

L7 ANSWER 6 OF 13 USPATFULL
AN 1999:11551 USPATFULL
TI R-T-E cereal with **psyllium**
IN Ringe, Mitchell L., Maple Grove, MN, United States
Stoll, James R., Maple Grove, MN, United States
PA Kellogg Company, Battle Creek, MI, United States (U.S. corporation)
PI US 36067 19990126
US 5026689 19910625 (Original)
AI US 1995-547679 19951018 (8)
US 1989-330245 19890329 (Original)
RLI Continuation of Ser. No. US 1992-924918, filed on 5 Aug 1992, now abandoned
DT Reissue
FS Granted
LN.CNT 846
INCL INCLM: 514/057.000
INCLS: 424/439.000; 424/441.000; 426/002.000; 426/003.000; 426/560.000;
426/620.000; 426/621.000; 426/800.000; 426/804.000; 426/808.000;
514/054.000
NCL NCLM: 514/057.000
NCLS: 424/439.000; 424/441.000; 426/002.000; 426/003.000; 426/560.000;
426/620.000; 426/621.000; 426/800.000; 426/804.000; 426/808.000;
514/054.000
IC [6]
ICM: A23L001-42
ICS: A23L001-29; A21D008-00; A21D013-00
EXF 424/195.1; 424/439; 424/441; 426/2; 426/3; 426/800; 426/804; 426/808;
426/560; 426/621; 514/54; 514/57
TI R-T-E cereal with **psyllium**
AB Disclosed are ready-to-eat cereals containing high levels of **psyllium** husk and methods for their preparation. The cereals contain about 2% to 37% **psyllium**, about 20% to 80% of a starchy cereal component, and about 5% to 15% insoluble **fiber**. The weight ratio of soluble to insoluble **fiber** ranges from about 1 to 5:1. The total fructose content is less than about 5%. The minimum soluble **fiber** content is 3 g/oz.
SUMM . . . present invention relates to food products and to their methods of preparation. More particularly, the present invention relates to high **fiber**, ready-to-eat ("R-T-E") cereal products and to their methods of preparation.
SUMM . . . items. R-T-E cereals exist in large numbers of varieties. R-T-E cereals, especially whole grain, are known as good sources of **fiber**. A good description of the literature pertaining to the health discussion on the role of **fiber** is found in U.S. Pat. No. 4,777,045 (issued Oct. 11, 1988 to Vanderveer et al. and is entitled High Bran Snack) which is incorporated herein by reference. In view of the health interest in **fiber**, high **fiber** cereals are increasingly popular. These cereals contain added levels of **fiber** sources, especially corn and wheat bran, and range

- generally from about 2-5 g **fiber**/oz cereal. Generally, the **fiber** is predominantly of the insoluble type. Some cereals are formulated from all bran sources and can contain up to 8-10 g/oz **fiber**. High **fiber** cereals using purified insoluble **fiber** sources and artificial sweeteners can even contain as high as 8-13 g **fiber**/oz of cereal.
- SUMM While popular, high **fiber** cereals are not without disadvantages. The primary concern is with the organoleptic qualities of the R-T-E cereal. Generally, as the concentration of **fiber** increases, the starchy components decrease, adversely affecting the cereals organoleptic and physical properties. High **fiber** cereals are often dry, exhibit short bowl lives and yield highly frangible food pieces. Second, while most **fiber** rich R-T-E cereals have higher levels of insoluble fibers, present consumer interest is focused upon cereals containing oat bran which is a rich source of soluble **fiber**. There is a growing awareness of the health benefits to people associated with soluble **fiber** consumption, especially reductions in blood serum cholesterol, i.e., antihypercholesterolemic benefits. Unfortunately, cereals high in soluble fibers typically are gummy or. . .
- SUMM The present invention is directed towards the provision of a high **fiber** R-T-E cereal with superior organoleptic attributes or qualities. Surprisingly, the present invention provides such a superior quality high **fiber** R-T-E cereal which nonetheless contains a high concentration of soluble **fiber**. Moreover, in preferred embodiments, the present cereal compositions provide high **fiber** cereals having soluble **fiber** predominating. The present invention resides in part in the particular selection of **psyllium** as the soluble **fiber** source.
- SUMM **Psyllium** is a well known material long used as a bulk **fiber** source in laxative compositions to be added to liquids (see, for example, U.S. Pat. No. 4,459,280, issued Jul. 10, 1984, to Colliopoulos et al. and which is incorporated herein by reference). Moreover, **psyllium** husk rich **fiber** supplement compositions are known (U.S. Pat. No. 4,766,004, issued Aug. 23, 1988, to Moskowitz entitled Crunchy, Highly Palatable, Bulk-Increasing, Dietary **Fiber Supplement** Composition) discloses a crunchy **psyllium**-containing composition comprising a flavored, sweetened, vegetable fat and optionally other fibers.
- SUMM Other high **fiber** food products containing other **fiber** sources are well known. For example, U.S. Pat. No. 4,568,557, to Becker et al., discloses a snack food product prepared by premixing a dietary **fiber** with a food grade oil; premixing a compound coating containing a fractionated fat, sweetener, milk solids, yogurt, and a flavoring agent; blending the two pre-mixtures and adding a cereal product to obtain texture and a dried fruit or nut for flavor; . . .
- SUMM . . . these references disclose compositions of improved palatability, the taste of most products, especially R-T-E cereals, containing a sufficient amount of **fiber**, especially soluble, to be efficacious continues to be a problem. Those products which are particularly rich in **fiber** generally employ a fat or oil to increase the palatability of the products to mask partially the dryness and/or grittiness of most **fiber** sources. Thus, it is quite surprising that whole **psyllium** husks, when admixed with other **fiber** sources and a starchy cereal component will provide a crunchy, organoleptically pleasing efficacious R-T-E cereal which does not require high. . .
- SUMM . . . and R-T-E cereals fabricated therefrom as well as to methods for preparing such R-T-E cereals. The cereal compositions essentially comprise **psyllium** husk, a starchy cereal component, and an insoluble **fiber** source. The cereal contains at least 3 g/oz of soluble **fiber**. The cereal composition is further defined by

- the weight ratio of soluble to insoluble **fiber** and maximum fat and fructose levels. Notwithstanding higher concentrations of water soluble **fiber** and the absence of added fat, the R-T-E cereals are organoleptically desirable. The R-T-E cereal products are further essentially defined by limited concentrations of fructose. In another embodiment, the present invention provides oat or oat bran R-T-E cereals fortified with respect to soluble **fiber** content by incorporation therein with **psyllium**.
- SUMM In one method aspect, the present invention resides in methods for preparing the present, high soluble **fiber** and **psyllium** containing R-T-E cereal. The methods essentially comprise blending the cereal ingredients with controlled amounts of water, cooking the mixture to. . .
- DETD The present invention relates to R-T-E cereals containing high levels of **psyllium** to methods for their preparation and to methods of reducing blood serum cholesterol by consumption of such cereals. In addition to conventional cereal ingredients, the present cereals additionally comprise **psyllium** and insoluble **fiber** sources. Each of these product constituents, as well as their method for preparation and use are described in detail below. . .
- DETD **Psyllium** seed gum is well known and has a long history of use by humans and is a staple of commerce. The sourcing and use of **psyllium** is well described in various sources including Industrial Gums: Polysaccharides and Their Uses, second edition, edited by Whistler et al.. . .
- DETD Generally, **psyllium** husks are the clean, dried seed coat material which is separated by whinnowing and thrashing from the seeds of Plantago ovata, known in commerce as blanc **psyllium**, Indian **psyllium** or ispaghula. French (black) **psyllium** comes from Plantago indica and occasionally from Spain as well. Both **psyllium** seed and **psyllium** husk are classified as bulk forming laxatives. As used in the present invention, the noun "**psyllium**" is meant to refer to **psyllium** husks and not to **psyllium** seed or to **psyllium** seed gum. **Psyllium** seed gum is not intended to be embraced herein by the term "**psyllium**".
- DETD **Psyllium**, or synonomously **psyllium** husks, as noted briefly above, is prepared by abraiding **psyllium** seed to separate the **psyllium** husk or mucilage from the seed core. **Psyllium** husk is available in various commercial grades. First cut or highest grade **psyllium** is preferred due to its higher concentration of water soluble **fiber**. However, first cut **psyllium** or high grade **psyllium** is more expensive. Second cut, or blends of first cut with second cut, are less desirable due to their lower soluble **fiber** content but, generally, are nonetheless more preferred for use herein due to their lower cost/value relationship.
- DETD The present cooked cereal compositions essentially comprise sufficient amounts of **psyllium** alone, or in combination with other soluble **fiber** providing components, so as to provide the cereal compositions with a soluble **fiber** content of at least 3 g/oz. In the practice of the present invention, good results are obtained when the first pass (a purity level of about 95%) or second pass **psyllium** (about 85% purity) comprises about 2% to about 37% of the cereal composition in order to obtain the benefits of good organoleptic properties together with the advantages of dietary **fiber**. Better results in terms of balancing the health benefits efficacy, especially antihypercholesterolemic activity, balanced with acceptable organoleptic attributes are obtained when the **psyllium** is present at a concentration range of from about 5% to 15% by weight of the cereal, and for best results about 9%. Generally, higher amounts of second pass, lower soluble **fiber** content **psyllium** are needed than when first pass **psyllium** with a higher soluble **fiber** content is employed.

- DETD When psyllium is used alone as the principle soluble fiber, i.e., when neither significant levels of pectin, oat bran or oat flour or other concentrated soluble fiber sources are employed, then the R-T-E cereals essentially comprise about 15% to 37% psyllium in order to provide sufficient amounts of soluble fiber to realize at least 3 g/oz soluble fiber.
- DETD It is important that the present cereal compositions have an insoluble fiber component as well as a soluble fiber component. High concentrations of soluble fibers in R-T-E cereal compositions can, however, result in undesirable organoleptic attributes including upon consumption. . . or gummy texture. Of course, utilization of cereal flours as described above will provide R-T-E cereal compositions with some insoluble fiber concentration, particularly when whole grain, e.g., whole wheat, flours are employed. The skilled artisan will appreciate that minor amounts of soluble fiber are associated with most cereal grains with the exception of oat flour or oat bran which provides comparatively high levels of soluble fiber. Generally, however, it has been found necessary to incorporate into the R-T-E cereal composition supplemental materials which are rich in insoluble fiber. Such addition is desirable in order to achieve the weight ratios of soluble to insoluble fibers surprisingly found to be essential and effective for the realization of high fiber R-T-E organoleptically superior cereals of the present invention.
- DETD Suitable materials for use herein as insoluble fiber sources are well known and the skilled artisan will have no difficulty in selecting materials suitable for use herein. Especially useful herein as sources of insoluble fiber are cereal brans including wheat bran, corn bran, rice bran, oat bran, rye bran, barley and mixtures thereof. It will be appreciated that such sources may also contribute minor amounts of soluble fiber as well. Also useful herein are noncereal fiber sources including cellulose flour, cellulose fiber, sugar beet fiber, etc. Sugar beet fiber can comprise up to 80% total dietary fiber with about 20% soluble fiber and 60% insoluble fiber. Sufficient amounts of these materials are used so as to achieve the weight ratio of soluble to insoluble fibers herein.
- DETD The measurement of total dietary fiber, soluble fiber, and insoluble fiber is subject to disparate analytical methods and values determined thereby. For purposes of the present invention, "soluble" and "insoluble" fiber values are to be determined by an accepted test procedure for fiber developed by Prosky et al. and described in "Determination of Insoluble, Soluble and Total Dietary Fiber in Foods and Food Products," Journal of the Association of Official Analytical Chemists, Vol. 71, No. 5 (1988) which is. . .
- DETD The present R-T-E cereal compositions can include additional or supplemental sources of soluble fiber in addition to psyllium. One possible, although expensive, source of soluble fiber is to employ commercially available high methoxyl pectin. While desirable due to its cost and availability, the utilization of pectin aggravates the problems of providing organoleptically acceptable cereal products. Accordingly, when pectin is used to provide additional soluble fiber, generally lower ratios of soluble to insoluble fiber are preferred. Other useful sources of soluble fiber include oat bran, guar gum, carboxymethyl cellulose and mixtures thereof. If present, each of these supplemental soluble fiber sources can comprise from about 0.1% to 60%, and, preferably, when used in addition to oat bran, about 1% to 5% of the present compositions.
- DETD Additionally, the present cereal compositions can include oat bran. Furthermore, oat bran has a fiber fraction in addition to the high cereal or starchy fraction. Oat bran is a

concentrated source of a soluble fiber and can comprise at least 6% soluble fiber (about 1.7 g/oz) as well as at least 6% insoluble fiber (about 1.7g/oz). Accordingly, inclusion of oat bran into the present R-T-E cereal composition simultaneously can provide the present essential starchy cereal component, a soluble fiber component, and an insoluble fiber component. The soluble to insoluble fiber ratio of oat bran is approximately 1:1. The oat bran can comprise from about 10% to about 60% of the cereal composition. Better results in terms of organoleptic attributes are obtained when the oat bran comprises from about 12% to about 50% by weight of the composition, and for best results about 40%. Thus, in one embodiment, the present invention provides an oat flour and/or oat bran R-T-E cereal fortified with respect to soluble fiber by inclusion of psyllium when oat flour and/or oat bran is the major starchy cereal component.

DETD For good results, the soluble to insoluble fiber ratio ("S/I" ratio) of the present R-T-E cereals can range from at least about 0.5:1. When pectin is employed as a secondary soluble fiber source, the S/I ratio is essentially at least 0.8:1. Better results are obtained when the S/I ratio is at least . . .

DETD . . . the R-T-E cereal. It has surprisingly been found that fructose appears to adversely affect the antihypercholesterolemic efficacy of the soluble fiber content. This restriction of fructose content includes both any fructose in the base cereal and any fructose associated with any. . .

DETD . . . component is quite low. The fat content results from the native fat associated with the starchy cereal component(s) and the psyllium. Permissible low fat additions can also result from adding emulsifiers and from vitamin or flavor addition. However, the total fat. . .

DETD Fiber, especially insoluble fiber, is believed to affect adversely selected mineral and vitamin absorption. Accordingly, in highly preferred embodiments, in particular, the present R-T-E. . .

DETD . . . formation. That is, during admixture or cooking, only low shear blending should be employed. High shear treatment of the soluble fiber also appears to adversely affect the efficacy of the soluble fiber. Thus, those cereal preparation methods and equipment designed to provide high shear cooking of cereal doughs, e.g., twin screw extruders. . .

DETD . . . to 60% moisture, preferably about 25% to 35% moisture. Excessive moisture addition can result in excessive water absorption by the fiber component. Such excessive water absorption not only can result in processing and handling problems, but also, and more importantly, in. . .

DETD The present R-T-E cereal pieces are further essentially characterized by high levels of soluble fiber. The present R-T-E cereals essentially comprise at least 3 g/oz of soluble fiber. Preferred cereals are essentially further defined by soluble fiber contents ranging from about 4 to 6 g/oz of soluble fiber. For best results, the soluble fiber content is about 12%. Good results are obtained and the present compositions essentially are defined when the cereal compositions comprise about 11% to 30% soluble fiber (3 to 8 g/oz). Preferred compositions comprise about 11% to 21% soluble fiber (3 to 6 g/oz).

DETD . . . present invention can be consumed in a conventional manner to obtain the nutritional and physiological benefits of a high soluble fiber cereal food. In particular, it has been surprisingly discovered that the present cereal compositions when consumed regularly in prescribed dosage. . .

DETD A ready-to-eat cereal composition of the present invention having high levels of soluble fiber was prepared according to the following procedure. A dry blend, a wet blend, and a sugar coating composition were separately. . .

DETD
 Ingredients Weight %

A. Base Dry Blend

Oat bran	41.50
Rice flour	37.20
Psyllium - 85% purity	
	8.50
(i.e., 85% gum-containing husk)	
Insoluble fiber	6.30
(sugar beet fiber)	
Wheat bran	2.10
Sucrose	2.10
Guar gum	1.25
Sodium bicarbonate	0.35
Trisodium phosphate	
	0.30
Vitamin blend	0.08
	100.00%

B. Malt Syrup/Color Blend

Malt syrup	44.20
Corn syrup	4.10
Food grade color	11.60
Potassium sorbate	.

DETD . . . approximately 10% added slurry. The coated flakes were then dried to a final moisture of about 2.0%. The high soluble **fiber** R-T-E cereal so prepared was then conventionally packaged.

DETD The final product had a soluble **fiber** content of 3.0 g/oz and an insoluble **fiber** content of 3.0 g/oz giving a soluble to insoluble **fiber** ratio of 1:1. The total fructose concentration of the sugar coated R-T-E cereal was about 4%. The total fat content.

DETD A ready-to-eat cereal composition of the present invention having high levels of soluble **fiber** is prepared according to the following procedure. A dry blend, a wet blend and a sugar coating composition were separately. . .

DETD
 Ingredients Weight %

A. Dry Base Blend

Whole wheat	66.32
Psyllium - 85% purity	
	15.00
White wheat bran	8.00
Sugar	7.50
Salt	1.50
Guar gum	1.20
Vitamin blend	0.40
Trisodium phosphate	
	0.08
	100.00%

B. Malt Syrup Slurry

Water	92.00
Cereal malt syrup	
	7.90
Food coloring	0.10
(e.g. Annatto)	
	100.00%

C. Sugar Slurry

Sugar. . .

DETD The final product has a soluble **fiber** content of 3.31 g/oz and an insoluble **fiber** content of 3.2 g/oz giving a soluble to insoluble **fiber** ratio of 1:1. The total fructose concentration

of the sugar coated R-T-E cereal is about 5%. The total fat content. .

DETD An R-T-E cereal of the present invention having high levels of soluble fiber is prepared according to the following procedure. A dry blend, a wet blend and a sugar coating composition were separately. .

DETD

Ingredients	Weight %
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A. Dry Base Blend
Yellow corn cones 37.55
Oat bran 27.00
Psyllium - 85% purity
24.00
Sugar 5.00
Heavy wheat bran 4.00
Guar gum 1.20
Salt 0.50
Sodium bicarbonate 0.35
Trisodium phosphate
0.30
Vitamin blend 0.40
100.00%

B. Malt Syrup/Color Blend
Malt syrup 44.20
Corn syrup 44.10
Food grade color 11.60
Potassium. . .

DETD The final product has a soluble fiber content of 5.4 g/oz and an insoluble fiber content of 1.8 g/oz giving a soluble to insoluble fiber ratio of 3:1. The total fructose content of the sugar coated flake is less than 5%. The total fat content. . .

DETD

Ingredients	Weight %
-------------	----------

A. Dry Base Blend
Oat bran 30.00
Yellow corn cones 28.00
Psyllium - 85% purity
16.00
High methoxyl pectin
13.50
Dent corn starch 9.60
Guar gum 1.20
Salt 0.50
Sodium bicarbonate
0.50
Vitamin blend 0.40
Trisodium phosphate
0.30
100.00%

B. Corn Syrup Blend
High fructose corn syrup
99.60
Food coloring 0.40
100.00%

C. . .

DETD . . . about 0.04% added aspartame. An additional vitamin mix may be applied here as described in Example 1. The high soluble fiber R-T-E cereal so prepared was conventionally packaged.

DETD The final product has a soluble fiber content of 6.4 g/oz and an insoluble fiber content of 1.3 g/oz giving a soluble to insoluble fiber ratio of 5:1. The total fructose content of the cereal is about 3% to 4%. The total fat content was. . .

CLM

What is claimed is:

1. A ready-to-eat (R-T-E) cereal high in total dietary **fiber**, comprising a cereal composition including: A. about 2% to 37% by weight of the cereal composition of **psyllium** having a soluble **fiber** content of at least about 65% by weight; B. about 20% to 80% by weight of the cereal composition of a starchy cereal ingredient; C. sufficient amounts of an insoluble **fiber** source so as to provide the cereal composition with a weight ratio of soluble **fiber** to insoluble **fiber** of about 1 to 5:1; D. a moisture content of about 1% to 6% by weight of the cereal composition; and wherein the total fructose content is less than about .[.5.].
.Iadd.15.Iaddend.% by weight, and wherein the minimum soluble **fiber** content is about 3 g/oz of the cereal composition.

. . . claim 1 wherein the cereal composition additionally comprises: E. about 10% to 60% by weight of the cereal composition of **oat** flour or **oat** bran.

3. The R-T-E cereal of claim 2 wherein the weight ratio of soluble **fiber** to insoluble **fiber** is at least 3:1.

4. The R-T-E cereal of claim 3 wherein the cereal composition comprises about 3 to 6 g/oz of soluble **fiber**.

5. The R-T-E cereal of claim 4 wherein the cereal composition includes about 0.1% to 15% by weight of the cereal composition of a soluble **fiber** source member selected from the group consisting of **guar gum**, carboxymethyl cellulose, high methoxyl pectin, and mixtures thereof.

6. The R-T-E cereal of claim 5 wherein the insoluble **fiber** source includes a member selected from the group consisting of sugar beet **fiber**, wheat bran, corn bran, rice bran, barley bran and mixtures thereof.

9. The R-T-E cereal of claim 8 containing about 4 to 6 g/oz soluble **fiber**, and wherein the R-T-E cereal is in flake form, wherein the water activity ranges from about 0.1 to 0.3, wherein the weight ratio of soluble **fiber** to insoluble **fiber** is greater than 5:1, and wherein the cereal is fortified with calcium, reduced iron and riboflavin.

10. A method for preparing an R-T-E cereal of good eating quality and high levels of soluble **fiber**, comprising the steps of: A. forming an homogeneous cereal blend comprising (1) about 5% to 37% by weight of **psyllium** having a soluble **fiber** content of at least 65% by weight, (2) about 20% to 80% by weight of a starchy cereal ingredient, (3) sufficient amounts of an insoluble **fiber** source so as to provide the blend with a weight ratio of soluble **fiber** to insoluble **fiber** of about 1 to 5:1, (4) about 20% to 40% by weight water, the weight percents of ingredients (1) to (3) being based on the total dry weight of the cereal blend, wherein the minimum soluble **fiber** content of the blend is about 3 g/oz (dry weight basis), wherein the total fructose content (dry weight basis) is. . .

. . 11. The method of claim 10 wherein the cereal blend additionally comprises (5) about 10% to 60% by weight of **oat** flour or **oat** bran.

12. The method of claim 11 wherein the weight ratio of soluble **fiber** to insoluble **fiber** is at least 1.5:1.

. . . method of claim 12 wherein the blend includes about 0.1% to 15% by weight of the blend of a soluble **fiber** source member selected

from the group consisting of **guar** gum, carboxymethyl cellulose, high methoxyl pectin, and mixtures thereof.

19. A ready-to-eat (R-T-E) cereal high in total dietary **fiber**, comprising a cereal composition including: A. about 2% to 37% by weight of the cereal composition of **psyllium** having a soluble **fiber** content of at least about 65% by weight; B. about 20% to 80% by weight of the cereal composition of a starchy cereal ingredient; C. sufficient amounts of an insoluble **fiber** source so as to provide the cereal composition with a weight ratio of soluble **fiber** to insoluble **fiber** of about 0.5 to 5:1; D. a moisture content of about 1% to 6% by weight of the cereal composition; and wherein the total fructose content is less than about 15% by weight and the minimum soluble **fiber** content is about 3 g/oz of the cereal composition..Iaddend..Iadd.20. The R-T-E cereal of claim 19 wherein the cereal composition additionally comprises: E. about 10% to 60% by weight of the cereal composition of **oat** flour or **oat** bran..Iaddend..Iadd.21. The R-T-E cereal of claim 20 wherein the cereal composition includes as a soluble **fiber** source at least one member selected from the group consisting of **guar** gum, carboxymethyl cellulose, and high methoxyl pectin..Iaddend..Iadd.22. The R-T-E cereal of claim 21 wherein the insoluble **fiber** source includes at least one member selected from the group consisting of sugar beet **fiber**, wheat bran, corn bran, rice bran, and barley bran..Iaddend..Iadd.23. The R-T-E cereal of claim 22 additionally comprising: F. about 1%. . . containing a sugar coating..Iaddend..Iadd.25. A method for preparing an R-T-E cereal of good eating quality and high levels of soluble **fiber**, comprising the steps of: A. forming an homogeneous cereal blend comprising (1) about 5% to 37% by weight of **psyllium** having a soluble **fiber** content of at least 65% by weight, (2) about 20% to 80% by weight of a starchy cereal ingredient, (3) sufficient amounts of an insoluble **fiber** source so as to provide the blend with a weight ratio of soluble **fiber** to insoluble **fiber** of about 0.5 to 5:1, (4) about 20% to 40% by weight water, the weight percents of ingredients (1) to (3) being based on the total dry weight of the cereal blend, wherein the minimum soluble **fiber** content of the blend is about 3 g/oz (dry weight basis), wherein the total fructose content (dry weight basis) is. . . pieces..Iaddend..Iadd.26. The method of claim 25 wherein the cereal blend additionally comprises (5) about 10% to 60% by weight of **oat** flour or **oat** bran..Iaddend..Iadd.27. The method of claim 26 wherein the blend includes as a soluble **fiber** source at least one member selected from the group consisting of **guar** gum, carboxymethyl cellulose, and high methoxyl pectin..Iaddend..Iadd.28. The method of claim 27 wherein the moisture content of the cooked cereal. . .

L7 ANSWER 7 OF 13 USPATFULL

AN 96:22875 USPATFULL

TI Anion exchange resin compositions containing almond paste for taste improvement

IN Andre, James R., Cincinnati, OH, United States

Colliopoulos, John A., Cincinnati, OH, United States

PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)

PI US 5500190 19960319

AI US 1993-127285 19930923 (8)

RLI Continuation of Ser. No. US 1992-855327, filed on 20 Mar 1992, now abandoned

DT Utility

FS Granted

LN.CNT 699

INCL INCLM: 424/078.100

INCLS: 424/078.010
NCL NCLM: 424/078.100
NCLS: 424/078.010
IC [6]
ICM: A61K031-78
ICS: A61K031-785
EXF 424/78.01; 424/78.12; 424/78.08; 424/78.1; 424/78.16
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates to marzipan-like compositions comprising an anion exchange resin, almond paste, and preferably **psyllium fiber**, in unit dose form. This invention also relates to the use of these compositions in a method for treating hypercholesterolemia. . .
. . . exchange resin. These compositions comprise almond paste and an anion exchange resin (e.g. cholestyramine, colestipol). An optional, preferred ingredient is **psyllium**.
SUMM . . . as carboxymethyl cellulose with a size range of about 4 to about 70 U.S. mesh, and a substrate comprising dietary **fiber** and/or drug, such as cholestyramine); U.S. Pat. No. 4,778,676, issued to Yang et al. Oct. 18, 1988 (describes a chewable. . .
SUMM Other publications relating to therapeutic use of cholestyramine or **psyllium** include the following. European Patent Application Publication No. 323,666, published Jul. 12, 1989 by The Procter & Gamble Company. This publication describes methods and compositions for reducing blood cholesterol levels by oral administration of **psyllium** and cholestyramine, optionally in combination with polyol polyesters. It is also stated therein that "cholestyramine resin, administered orally, has sometimes. . . containing cholestyramine often have an unpleasant sandy or gritty quality. Advantageously, these problems associated with cholestyramine are alleviated when the **psyllium** and/or **psyllium** plus optional polyol polyesters are employed therewith."
SUMM U.S. Pat. No. 4,824,672, issued to Day et al. Apr. 25, 1989, describes an orally utilizable pharmaceutical composition comprising gel-forming **fiber** (such as **guar gum**, **psyllium seed**, pectin, glucomannan, **oat** and **barley**) and a mineral salt (such as calcium carbonate, magnesium carbonate, or potassium carbonate) said to be administered to. . .
SUMM . . . of cholestyramine or colestipol (bile acid sequestrants used to decrease blood cholesterol levels) to take a bulk laxative, such as **psyllium fiber**, with the evening dose of sequestrant if other dietary changes do not alleviate the problem of constipation.
SUMM The Effect of **Psyllium** Hydrocolloid and Cholestyramine on Hepatic Bile Lipid Composition in Man, Behrer et al., Henry Ford Hospital Medical Journal, Vol. 21(1) (1973), examined the effects of **psyllium** hydrocolloid and of cholestyramine on the total cholesterol, total phospholipid, total bile salt, cholate, chenodeoxycholate, and deoxycholate concentrations of 6. . .
SUMM Other U.S. patents that describe compositions in which **psyllium** is an optional or essential ingredient include: U.S. Pat. No 4,766,004, to Moskowitz, issued Aug. 23, 1988 (describes dietary **fiber supplement** compositions comprising whole **psyllium** husks having a particle size of from 12 to 70 mesh, food grade vegetable fat which is a solid at room temperature, sweetening agent and **flavoring agent**); and U.S. Pat. No. 4,698,232, to Sheu et al., issued Oct. 6, 1987 (describes **fiber**-containing confectionery compositions comprising dietary **fiber** pretreated with a lubricant, a foamed matrix, and an amorphous matrix).
SUMM Naturacil® (sold by Mead Johnson) is an artificial chocolate flavored, caramel-like laxative product containing **psyllium**. The ingredients listed for this product include sugar, glycerin, nonfat milk, and partially hydrogenated vegetable oil.
SUMM U.S. Pat. No. 4,871,557 to Linscott, issued Oct. 3, 1989 describes a granola bar containing supplemental dietary **fiber**.

Psyllium is listed as one of many sources of supplemental dietary **fiber**. Flavoring agents, toasted rolled oats, chopped almonds, and coconut flakes are among many materials mentioned as optional granola ingredients. U.S. Pat. No. 4,619,831, to Sharma, issued Oct. 28, 1986, describes dietary **fiber** products comprising insoluble dietary **fiber** (92-98.5%) coated or enrobed with soluble dietary **fiber** (1.5-8%; **psyllium** is mentioned as one of many soluble fibers). U.S. Pat. No. 5,009,916, to Colliopoulos, issued Apr. 23, 1991, describes high **fiber** food compositions comprising **psyllium** and other dietary **fiber** sources.

- SUMM . . . German Patent Specification 2,430,509, published Jan. 15, 1976 by Hypolab S.A., Genf. (Schweiz), describes preparing compositions containing bulk laxatives (including **psyllium** mucilloid) in the form of a cake. The cake dough is prepared and baked in molds to produce cakes having. . .
- SUMM . . . Feb. 4, 1986 and U.S. Pat. No. 4,673,578, issued Jun. 16, 1987, both to Becker et al., describe high dietary **fiber**-containing snack food products and methods comprising from about 5% to about 30% by weight of dietary **fiber**, soaked in food grade oil, for example, admixed with peanut butter such that the peanut oil becomes absorbed by the **fiber**, and further mixed with a compound coating.
- SUMM . . . has also been discovered that an anion exchange resin can be prepared in the form of a marzipan-like composition with **psyllium** as a preferred optional ingredient. These compositions are believed to offer an even greater enhancement to the texture, mouthfeel and. . .
- SUMM . . . to about 80% almond paste; from 0% to about 85% carrier material; and, preferably, from about 5% to about 50% **psyllium** **fiber**. Furthermore, the compositions preferably have water activities ("Aw") within the range of from about 0.25 to about 0.75. The compositions. . .
- SUMM . . . paste; and (c) preferably, carrier materials suitable for ingestion (preferably sugars and/or humectants and/or flavorants). A preferred optional component is **psyllium** **fiber**. Further, these compositions preferably have low water activities ("Aw"). The components for use in the present compositions, and the preferred. . .
- SUMM The present compositions also optionally comprise dietary **fiber**, preferably **psyllium** husk **fiber** as described hereinafter and/or insoluble dietary **fiber**. The term "insoluble dietary **fiber**", as used herein, means the water insoluble, substantially non-swellable component of **fiber** material safe for human ingestion which is non-digestible and non-metabolizable by humans.
- SUMM A wide range of materials containing insoluble dietary **fiber** may be used in the present invention. Preferred are cereal brans and mixtures thereof, due to their relatively high content of insoluble dietary **fiber**. Also preferred is that these cereal brans comprise at least about 75% of the insoluble dietary **fiber**. Brans preferred include those selected from the group consisting of wheat, corn, barley, rye, oats, rice, soybean, beets, and mixtures thereof. Most preferred are **oat** or corn. The components of the insoluble dietary **fiber** from these cereal brans are known to be cellulose, hemicellulose and lignin.
- SUMM Compositions of the present invention containing insoluble dietary **fiber** typically comprise from about 1% to about 20% of an insoluble dietary **fiber**, and preferably from about 5% to about 10% insoluble dietary **fiber**, by weight of the compositions.
- SUMM . . . ("Aw") in the range of about 0.25 to about 0.75. Levels above this range are generally not desirable, especially when **psyllium** husk **fiber** is utilized as part of the composition, unless consumption is to occur within a relatively short time after

preparation. Levels. . .

SUMM (d) **Psyllium Fiber:**

SUMM The present compositions preferably comprise **psyllium fiber**. The term "**psyllium fiber**", as used herein, means the seed coat or "husk" of **psyllium** seed (either intact or macerated or otherwise comminuted).

SUMM **Psyllium fiber** comes from **psyllium** seed, from plants of the *Plantago* genus. Various species such as *Plantago lanceolate*, *P. rugelii*, and *P. major*, are known. Commercial **psyllium** includes the French (black; *Plantago indica*), Spanish (*P. psyllium*) and Indian (blonde; *P. ovata*). Indian (blonde) **psyllium** is preferred for use herein.

SUMM . . . preferably removed and sanitized by methods known in the art prior to use in the present compositions. For example, the **psyllium** husk may be sanitized by ethylene oxide or, preferably, by superheated steam (as described in U.S. Pat. No. 4,911,889, issued Mar. 27, 1990 to Leland et al., incorporated herein by reference in its entirety). Furthermore, the **psyllium fiber** preferably has high purity, being about 85% to about 100% pure, and more preferably being about 95% to about 100%. . .

SUMM The preferred compositions of the present invention comprise from about 5% to about 50% **psyllium fiber**, preferably from about 5% to about 30% **psyllium fiber**, and more preferably from about 10% to about 25% **psyllium fiber**, by weight of the compositions.

SUMM . . . level a safe and effective amount of an anion exchange resin-containing composition according to the present invention, preferably also comprising **psyllium fiber**. The term "safe and effective amount", as used herein, means an amount of an anion exchange resin, or anion exchange resin/**psyllium fiber**, composition high enough to significantly positively modify the hypercholesterolemic condition being treated, but low enough to avoid serious side effects. . . to about 30 g of the anion exchange resin daily and, if present, from 1 g to 30 g of **psyllium** husk.

SUMM Treatment of the human or lower animal patient comprises continuous administration of the anion exchange resin compositions, or anion exchange resin/**psyllium** compositions, to lower and/or maintain lowered cholesterol levels. As used herein "continuous administration" means ingestion by a human in need of said treatment one or more doses a day of an anion exchange resin (and preferably **psyllium**) for two or more days. Daily ingestion of the present compositions preferably comprises from about 4 g to about 24 g of the anion exchange resin and from about 5 g to about 15 g **psyllium** husk taken orally, with said ingestion being once daily or at two, three, or four regularly spaced intervals throughout the. . .

DETD	Ingredients	Weight %
	Psyllium.sup.(1)	13.86
	Almond Paste.sup.(2)	13.86
	Corn Syrup.sup.(3)	22.71
	Powdered Sugar.sup.(4)	4.40
	Glycerin	8.19
	Ground Cinnamon	0.94
	Sorbic Acid	0.08
	Nutmeg	0.08
	Sorbitol Crystaline	12.60
	Cholestyramine Resin.sup.(5)	11.05
	Yogurt Coating.sup.(6)	12.23

.sup. (1) Steam sanitized **psyllium fiber** (95% purity).
.sup. (2) Blanched almond paste (unflavored), by Blue Diamond (Sacramento, Calif., Item Code 0787): 58% blanched almonds, 27.5% sugar,. . .
DETD . . . premixed with sorbic acid, glycerine, spices (cinnamon and nutmeg), and mix for 1 minute. Add all dry materials (powdered sugar, **psyllium**, sorbitol, and cholestyramine) and mix for 2 minutes or until a homogenous mixture is achieved. Scrape the Hobart mixer and. . .
DETD Ingestion of one piece of this product delivers 2.71 grams of cholestyramine and 3.4 grams of **psyllium** for use in the treatment of hypercholesterolemia. The **psyllium** also aids in normalizing the possible constipating effect of cholestyramine.

DETD

Ingredients	Weight %
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Psyllium	12.30
Powdered Sugar	5.10
Corn Syrup	20.14
Almond Paste	8.93
Glycerin	7.27
Sorbic Acid	0.07
Peanut Paste.sup. (1)	13.42
Peanut Butter Flavor	0.29
Sorbitol Crystaline	9.51
Colestid @.sup. (2)	12.12

Chocolate Coating. . .

DETD Ingestion of one piece of this product delivers 3.35 grams of colestipol granules and 3.4 grams of **psyllium** for use in the treatment of hypercholesterolemia. The **psyllium** aids in normalizing the possible constipating effect of colestid.

CLM What is claimed is:

8. The composition according to claim 1 further comprising a safe and effective amount of **psyllium fiber**.
9. A palatable composition of improved taste and mouthfeel as compared to the same composition not containing almond paste comprising: . . .
(c) from about 0% to about 85% carrier materials suitable for ingestion; and (d) from about 5% to about 50% **psyllium fiber**, and wherein further said composition is in a unit dose form.
. . . from the group consisting of glycerin, sweetening agents, flavorants, preservatives, and mixtures thereof; (d) from about 5% to about 30% **psyllium fiber**, and wherein further said composition is in a unit dose form.
- . . . 40% of one or more sweetening agents by weight of the composition; and (e) from about 10% to about 25% **psyllium fiber**; and wherein further said composition has an Aw within the range of from about 0.25 to about 0.75, and is. . .
- . . . comprising administering to a human or lower animal in need of such treatment a safe and effective amount of a **psyllium** and anion exchange resin-containing composition according to claim 9.
- . . . comprising administering to a human or lower animal in need of such treatment a safe and effective amount of a **psyllium** and anion exchange resin-containing composition according to claim 16.
- . . . comprising administering to a human or lower animal in need of such treatment a safe and effective amount of a **psyllium** and anion

exchange resin-containing composition according to claim 20.

L7 ANSWER 8 OF 13 USPATFULL
AN 93:91435 USPATFULL
TI Compositions containing **psyllium**
IN Cregier, Melissa M., Cincinnati, OH, United States
Colliopoulos, John A., Cincinnati, OH, United States
PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S.
corporation)
PI US 5258181 19931102
AI US 1992-844341 19920302 (7)
DT Utility
FS Granted
LN.CNT 453
INCL INCLM: 424/195.100
INCLS: 514/024.000; 514/057.000; 514/824.000; 426/074.000
NCL NCLM: 424/738.000
NCLS: 426/074.000; 514/024.000; 514/057.000; 514/824.000
IC [5]
ICM: A61K035-78
EXF 424/195.1; 514/25; 514/57; 514/824; 426/74
TI Compositions containing **psyllium**
AB The present invention relates to compositions comprising
psyllium fiber and peanut paste, and the use of these
compositions as laxatives and/or for cholesterol reduction benefits. The
compositions are a convenient, portable, highly palatable, and well
tolerated dosage form for administering **psyllium fiber**
SUMM The present invention relates to novel compositions containing
psyllium and peanut paste. The compositions have excellent
texture, mouthfeel and palatability, and are well tolerated by the
gastrointestinal tract. They. . . bowel function (including use as
laxatives) and/or for reducing blood cholesterol levels and/or for
weight control or other indications where **fiber** may be
beneficial.
SUMM Several U.S. patents describe non-baked compositions in which
psyllium is an optional or essential ingredient: U.S. Pat. No.
4,778,676, to Yang et al., issued Oct. 18, 1988 (describes chewable. . .
comprising a precoated active and a confectionery matrix); U.S. Pat.
No. 4,766,004, to Moskowitz, issued Aug. 23, 1988 (describes dietary
fiber supplement compositions comprising whole
psyllium husks having a particle size of from 12 to 70 mesh;
food grade vegetable fat which is a solid at room temperature,
sweetening agent and **flavoring agent**); U.S. Pat. No.
4,737,364, to Kalogris, issued Apr. 12, 1988 (describes low calorie dry
food concentrate); U.S. Pat. No. 4,698,232, to Sheu et al., issued Oct.
6, 1987 (describes **fiber**-containing confectionery compositions
comprising dietary **fiber** pretreated with a lubricant, a foamed
matrix, and an amorphous matrix); and U.S. Pat. No. 4,551,331, to Rudin,
issued Nov. 5, 1985 and R. E. 32,811, issued Dec. 27, 1988 (describe
dietary **fiber** products comprising a dietary **fiber**
coated with a food grade emulsifier). Peanut Butter Ultra Eat'n
Lose® Nutrition Bars (sold by CCA Industries, Inc.) is said to be a
peanut butter coated and containing, high **fiber** and mineral
supplemented nutrition bars wherein the **fiber** component is a
mixture of brans (e.g., corn, oat, wheat) and other fibers,
including a low amount of **psyllium**. Naturacil® (sold by
Mead Johnson) is an artificial chocolate flavored, caramel-like laxative
product containing **psyllium**; the ingredients listed for this
product include sugar, glycerin, nonfat milk, and partially hydrogenated
vegetable oil.
SUMM U.S. Pat. No. 4,784,861, to Gori, issued Nov. 15, 1988, describes
powders formed of a mixture of **oat**, wheat and corn bran mixed

with pectin, guar gum, **psyllium** and cutin to which mineral supplements have been added. U.S. Pat. No. 4,619,831, to Sharma, issued Oct. 28, 1986, describes dietary **fiber** products comprising insoluble dietary **fiber** (92-98.5%) coated or enrobed with soluble dietary **fiber** (1.5-8%; **psyllium** is mentioned as one of many soluble fibers). U.S. Pat. No. 4,565,702, to Morley et al., issued Jan. 21, 1986, describes dietary **fiber** compositions comprising dietary fibers which are insoluble fibers coated with soluble **fiber**. U.S. Pat. No. 4,348,379, to Kowalsky et al., issued Sep. 7, 1982, describes dietetic compositions comprising **psyllium** seed, linseed, and wheat bran. European Patent Application Publication No. 144,644, published Jun. 19, 1985 by G. D. Searle and Co., describes high **fiber** food compositions comprising **psyllium** and other dietary **fiber** sources.

SUMM . . . Patent Specification 2,430,509, published Jan. 15, 1976 by hypolab S. A., Genf. (Schweiz), describes preparing compositions containing bulk laxatives (including **psyllium** mucilloid) in the form of a cake. The cake dough is prepared and baked in molds to produce cakes having. . .

SUMM . . . 4,568,557, issued Feb. 4, 1986, and 4,673,578, issued Jun. 16, 1987, both to Becker et al., describe a high dietary **fiber**-containing snack food product. The product is said to comprise from about 5% to about 30% by weight of dietary **fiber**, soaked in a food grade oil, for example admixed with peanut butter such that the peanut oil becomes absorbed by the **fiber**, and further mixed with a compound coating.

SUMM . . . issued May 26, 1987. This patent indicates that these cookies can optionally include bulking agents such as dietary fibers (including **psyllium fiber**) at levels up to about 10% by weight of the dough.

SUMM . . . 3, 1981, by Syntex (U.S.A.) Inc., describes compositions comprising mixtures of purified cellulose and pectin as a source of dietary **fiber**. The effectiveness of these compositions for controlling fecal output in humans is compared versus various other compositions, including biscuits which comprise only **psyllium**.

SUMM In spite of the large amount of research aimed at developing portable and palatable composition containing **psyllium**, there is a continuing need to provide compositions having **psyllium** at levels high enough to provide therapeutic benefits in reasonably sized, portable compositions having good eating aesthetics and/or tolerance by. . . not satisfy this continuing need. It has been discovered, however, that such compositions can be prepared in bar form comprising **psyllium** and peanut paste. It has also been discovered that such compositions greatly enhance the eating quality and aesthetics for **psyllium fiber**, especially with regard to the stickiness of the composition (i.e., the tendency of the composition to stick to and/or form. . .

SUMM . . . of the present invention to provide compositions which are convenient, portable and highly palatable (e.g., having excellent texture and mouthfeel) **psyllium**-containing compositions. An object of the present invention is also to provide convenient, portable **psyllium**-containing compositions having good consumer acceptance to promote compliance with a regimen for providing Taxation benefits and/or reducing serum cholesterol levels. A further object is to provide **psyllium**-containing compositions having little or no gummy or rubbery texture and reduced stickiness during ingestion. Also, an object is to provide portable **psyllium**-containing compositions which may comprise high concentrations of **psyllium fiber** and which are efficacious for providing Taxation benefits and/or reducing serum cholesterol levels.

SUMM The present invention relates to highly palatable **psyllium**-containing compositions. These compositions comprise: from about 10% to 50% **psyllium fiber**; from about 5% to about 80% peanut paste; and from about 0% to about 85% carrier materials suitable

SUMM for ingestion. . . .
. . . These methods comprise orally administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing composition of the present invention.

DETD **Psyllium-Containing Compositions:**
DETD The present invention relates to compositions containing **psyllium** in unit dosage form. These compositions comprise: (a) **psyllium**; (b) peanut paste; and (c) preferably, carrier materials suitable for ingestion (preferably sugars and/or humectants and/or flavorants). Further, these compositions. . . .

DETD (a) **Psyllium Fiber**
DETD The present compositions comprise **psyllium fiber**. The term "**psyllium fiber**", as used herein, means the seed coat or "husk" of **psyllium** seed (either intact or macerated or otherwise comminuted).

DETD **Psyllium fiber** comes from **psyllium** seed, from plants of the *Plantago* genus. Various species such as *Plantago lanceolata*, *P. rugelii*, and *P. major*, are known. Commercial **psyllium** includes the French (black; *Plantago indica*), Spanish (*P. psyllium*) and Indian (blonde; *P. ovata*). Indian (blonde) **psyllium** is preferred for use herein.

DETD . . . preferably removed and sanitized by methods known in the art prior to use in the present compositions. For example, the **psyllium** husk may be sanitized by ethylene oxide or, preferably, by superheated steam (as described in U.S. Pat. No. 4,911,889, issued Mar. 27, 1990 to Leland et al., incorporated herein by reference in its entirety). Furthermore, the **psyllium fiber** preferably has high purity, being about 85% to about 100% pure, and more preferably being about 95% to about 100%. . . .

DETD The compositions of the present invention comprise from about 10% to about 50% **psyllium fiber**, preferably from about 10% to about 40% **psyllium fiber**, and more preferably from about 15% to about 30% **psyllium fiber**, by weight of the compositions.

DETD . . . to about 40% peanut paste, and more preferably from about 5% to about 20% peanut paste, by weight of the **psyllium**-containing compositions.

DETD The compositions of the present invention may further comprise other components compatible with the **psyllium** and peanut paste, and which are suitable for ingestion. In particular, such components must not significantly reduce the therapeutic efficacy of the **psyllium** for the therapeutic uses described herein (especially taxation and/or cholesterol reduction). Compositions of the present invention typically comprise from 0%. . . .

DETD The present compositions also optionally comprise other dietary **fiber**, preferably insoluble dietary **fiber**. The term "insoluble dietary **fiber**", as used herein, means the water insoluble, substantially non-swellable component of **fiber** material safe for human ingestion which is non-digestible and non-metabolizable by humans.

DETD A wide range of materials containing insoluble dietary **fiber** may be used in the present invention. Preferred are cereal brans and mixtures thereof, due to their relatively high content of insoluble dietary **fiber**. Also preferred is that these cereal brans comprise at least about 75% of the insoluble dietary **fiber**. Brans preferred include those selected from the group consisting of wheat, corn, barley, rye, oats, rice, soybean, beets, and mixtures thereof. Most preferred are oat, wheat, or corn. The components of the insoluble dietary **fiber** from these cereal brans are known to be cellulose, hemicellulose and lignin.

DETD Compositions of the present invention containing insoluble dietary **fiber** typically comprise from about 1% to about 20% of an insoluble dietary **fiber**, and preferably from about 5% to about 10% insoluble dietary **fiber**, by weight of the compositions.

DETD . . . or modified lecithin, antioxidants such as ascorbic acid and alpha-tocopherol, and the like. It is also possible to coat the psyllium-containing compositions of the present invention with a variety of confectionary coating materials. Preferred is coating the entire composition (i.e., enrobing). . . .

DETD . . . generally of a size and shape suited for ingesting by chewing, so as to administer the therapeutically effective amount of psyllium by a minimum number of dose units.

DETD . . . treatment. This method comprises administering to a human in need of such treatment a safe and effective amount of a psyllium-containing composition of the present invention. Ingestion of from about 2.5 grams to about 30 grams per day of the psyllium fiber in a composition according to the present invention is appropriate in most circumstances to produce Taxation. However, this can vary. . . . and condition of the patient, and such matters will, of course, be apparent to the attending physician. However, since the psyllium material is nontoxic, even higher ingestion levels can be used without undue side effects. A typical dose for Taxation purposes involves administering from about 3 to about 15 grams of psyllium fiber in one dose.

DETD . . . administering to a human in need of having a lowered blood cholesterol level a safe and effective amount of a psyllium-containing composition of the present invention. Ingestion of compositions of the present invention comprising amounts sufficient to administer from about 2.5 grams to about 30 grams per day of psyllium fiber, preferably from about 5 grams to about 15 grams, is appropriate in most circumstances. However, this can vary with the. . . . and the patient's blood cholesterol level. Such matters will, of course, be apparent to the attending physician. However, since the psyllium material is nontoxic, even higher ingestion levels can be used without undue side effects, keeping in mind the materials herein. . . .

DETD . . . levels. Daily ingestion is preferred, and a daily ingestion of from about 5 grams to about 15 grams of the psyllium fiber is most commonly used, with said ingestion preferably being at 2 or 3 regularly spaced intervals throughout the day. Again, . . .

Ingredients	Weight %
Psyllium(.sup.1)	23.35
Peanut Paste	10.50
Corn Syrup	17.09
Dextrose	12.08
Glycerin	9.55
Crisped Rice	5.00
Peanut Butter Flavor	0.80
Sorbitol, Crystalline	21.23
Salt	0.40
Chocolate Coating	--

(.sup.1) Steam sanitized psyllium fiber (95% purity).

DETD . . . paste, glycerin, and peanut flavor which is mixed until well blended. Next is added the sorbitol, dextrose, crisped rice and psyllium and mixed. This dough is then extruded into bars weighing approximately 15 grams each, which are subsequently enrobed with the. . . .

DETD Ingestion of one piece of this product delivers 3.4 grams of psyllium to provide a Taxation benefit.

CLM What is claimed is:

1. A pharmaceutical composition comprising: (a) from about 10% to about 50% psyllium fiber; (b) from about 5% to about 80%

peanut paste; and (c) from about 0% to about 85% carrier materials suitable for ingestion; and wherein further said composition is in unit dose forms containing **psyllium fiber** in amounts effective for providing laxation by a minimum number of dose units.

7. A pharmaceutical composition comprising: (a) from about 10% to about 40% **psyllium fiber**; (b) from about 5% to about 40% peanut paste; and (c) from about 20% to about 85% of carrier material.

. . . of glycerin, sweetening agents, flavorants, preservatives, and mixtures thereof; and wherein further said composition is in unit dose forms containing **psyllium fiber** in amounts effective for providing laxation by a minimum number of dose units.

9. A pharmaceutical composition comprising: (a) from about 15% to about 30% **psyllium fiber**; (b) from about 5% to about 20% peanut paste; (c) from about 5% to about 15% glycerin; and (d) from.

. . . the range of from about 0.2 to about 0.5; and wherein further said composition is in unit dose forms containing **psyllium fiber** in amounts effective for providing laxation by a minimum number of dose units.

. . . human, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing composition according to claim 1.

. . . human, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing composition according to claim 7.

. . . human, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing composition according to claim 9.

. . . human, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing composition according to claim 1.

. . . human said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing composition according to claim 9.

L7 ANSWER 9 OF 13 USPATFULL

AN 92:104784 USPATFULL

TI Compositions containing **psyllium**

IN Andre, James R., Cincinnati, OH, United States

Colliopoulos, John A., Cincinnati, OH, United States

PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)

PI US 5173296 19921222

AI US 1992-857688 19920325 (7)

RLI Continuation of Ser. No. US 1990-614655, filed on 16 Nov 1990, now abandoned

DT Utility

FS Granted

LN.CNT 468

INCL INCLM: 424/195.100

INCLS: 426/093.000; 426/103.000; 426/660.000

NCL NCLM: 424/738.000

NCLS: 426/093.000; 426/103.000; 426/660.000

IC [5]

ICM: A61K035-78

ICS: A23G003-00; A23L001-36

EXF 424/195.1; 426/93; 426/103; 426/660

- TI Compositions containing **psyllium**
- AB The present invention relates to marzipan-like compositions comprising **psyllium fiber** and almond paste, and the use of these compositions as laxatives and/or for cholesterol reduction benefits. The compositions are a convenient, portable, highly palatable, and well tolerated dosage form for administering **psyllium fiber**
- SUMM The present invention relates to novel marzipan-like compositions containing **psyllium**. These compositions essentially comprise **psyllium** and almond paste. The compositions have excellent texture, mouthfeel and palatability, and are well tolerated by the gastrointestinal tract. They . . . bowel function (including use as laxatives) and/or for reducing blood cholesterol levels and/or for weight control or other indications where **fiber** may be beneficial.
- SUMM Several U.S. patents describe non-baked compositions in which **psyllium** is an optional or essential ingredient: U.S. Pat. No. 4,778,676, to Yang et al., issued Oct. 18, 1988 (describes chewable . . . comprising a precoated active and a confectionery matrix); U.S. Pat. No. 4,766,004, to Moskowitz, issued Aug. 23, 1988 (describes dietary **fiber supplement** compositions comprising whole **psyllium** husks having a particle size of from 12 to 70 mesh, food grade vegetable fat which is a solid at room temperature, sweetening agent and **flavoring agent**); U.S. Pat. No. 4,737,364, to Kalogris, issued Apr. 12, 1988 (describes low calorie dry food concentrate); U.S. Pat. No. 4,698,232, to Sheu et al., issued Oct. 6, 1987 (describes **fiber**-containing confectionery compositions comprising dietary **fiber** pretreated with a lubricant, a foamed matrix, and an amorphous matrix); and U.S. Pat. No. 4,551,331, to Rudin, issued Nov. 5, 1985 and R.E. 32,811, issued Dec. 27, 1988 (describe dietary **fiber** products comprising a dietary **fiber** coated with a food grade emulsifier). Naturacil® (sold by Mead Johnson) is an artificial chocolate flavored, caramel-like laxative product containing **psyllium**; the ingredients listed for this product include sugar, glycerin, nonfat milk, and partially hydrogenated vegetable oil.
- SUMM U.S. Pat. No. 4,784,861, to Gori, issued Nov. 15, 1988, describes powders formed of a mixture of **oat**, wheat and corn bran mixed with pectin, **guar gum**, **psyllium** and cutin to which mineral supplements have been added. U.S. Pat. No. 4,619,831, to Sharma, issued Oct. 28, 1986, describes dietary **fiber** products comprising insoluble dietary **fiber** (92-98.5%) coated or enrobed with soluble dietary **fiber** (1.5-8%; **psyllium** is mentioned as one of many soluble fibers). U.S. Pat. No. 4,565,702, to Morley et al., issued Jan. 21, 1986, describes dietary **fiber** compositions comprising dietary fibers which are insoluble fibers coated with soluble **fiber**. U.S. Pat. No. 4,348,379, to Kowalsky et al., issued Sept. 7, 1982, describes dietetic compositions comprising **psyllium** seed, linseed, and wheat bran. European Patent Application Publication No. 144,644, published Jun. 19, 1985 by G. D. Searle and Co., describes high **fiber** food compositions comprising **psyllium** and other dietary **fiber** sources.
- SUMM . . . German Patent Specification 2,430,509, published Jan. 15, 1976 by Hypolab S.A., Genf. (Schweiz), describes preparing compositions containing bulk laxatives (including **psyllium** mucilloid) in the form of a cake. The cake dough is prepared and baked in molds to produce cakes having. . .
- SUMM . . . issued May 26, 1987. This patent indicates that these cookies can optionally include bulking agents such as dietary fibers (including **psyllium fiber**) at levels up to about 10% by weight of the dough.
- SUMM . . . 3, 1981, by Syntex (U.S.A.) Inc., describes compositions comprising mixtures of purified cellulose and pectin as a source of dietary **fiber**. The effectiveness of these compositions for

- SUMM controlling fecal output in humans is compared versus various other compositions, including biscuits which comprise only **psyllium**. In spite of the large amount of research aimed at developing portable and palatable compositions containing **psyllium**, there is a continuing need to provide compositions having **psyllium** at levels high enough to provide therapeutic benefits in reasonably sized, portable compositions having good eating aesthetics and/or tolerance by . . . gastrointestinal tract. It has been discovered that such compositions can be prepared in the form of a marzipan-like composition comprising **psyllium** and almond paste. It has also been discovered that such compositions greatly enhance the eating quality and aesthetics for **psyllium fiber**, especially with regard to the stickiness of the composition (i.e., the tendency of the composition to stick to and/or form). . .
- SUMM . . . of the present invention to provide compositions which are convenient, portable and highly palatable (e.g., having excellent texture and mouthfeel) **psyllium**-containing marzipan-like compositions. An object of the present invention is also to provide convenient, portable **psyllium**-containing compositions having good consumer acceptance to promote compliance with a regimen for providing laxation benefits and/or reducing serum cholesterol levels. A further object is to provide **psyllium**-containing compositions having little or no gummy or rubbery texture and reduced stickiness during ingestion. Also, an object is to provide portable **psyllium**-containing compositions which may comprise high concentrations of **psyllium fiber** and which are efficacious for providing laxation benefits and/or reducing serum cholesterol levels.
- SUMM The present invention relates to highly palatable marzipan-like **psyllium**-containing compositions. These compositions comprise: from about 5% to about 50% **psyllium fiber**; from about 10% to about 50% almond paste; and from about 0% to about 85% carrier materials suitable for ingestion. . .
- SUMM . . . These methods comprise orally administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing composition of the present invention.
- DETD **Psyllium Containing Compositions**
- DETD The present invention relates to marzipan-like compositions containing **psyllium**. These compositions comprise: (a) **psyllium** fiber; (b) almond paste; and (c) preferably, carrier materials suitable for ingestion (preferably sugars and/or humectants and/or flavorants). Further, these compositions. . .
- DETD (a) **Psyllium Fiber**
- DETD The present compositions comprise **psyllium fiber**. The term "**psyllium fiber**", as used herein, means the seed coat of **psyllium** seed (either intact or macerated or otherwise comminuted).
- DETD **Psyllium fiber** comes from **psyllium** seed, from plants of the Plantago genus. Various species such as Plantago lanceolata, P. rugellii, and P. major, are known. Commercial **psyllium** includes the French (black; Plantago indica), Spanish (P. **psyllium**) and Indian (blonde; P. ovata). Indian (blonde) **psyllium** is preferred for use herein.
- DETD . . . preferably removed and sanitized by methods known in the art prior to use in the present compositions. For example, the **psyllium** husk may be sanitized by ethylene oxide or, preferably, by superheated steam (as described in U.S. Pat. No. 4,911,889, issued Mar. 27, 1990 to Leland et al., incorporated herein by reference in its entirety). Furthermore, the **psyllium fiber** preferably has high purity, being about 85% to about 100% pure, and more preferably being about 95% to about 100%. . .
- DETD The compositions of the present invention comprise from about 5% to about 50% **psyllium fiber**, preferably from about 10% to about 30% **psyllium fiber**, and more preferably

- from about 15% to about 25% **psyllium fiber**, by weight of the compositions.
- DETD . . . to about 45% almond paste, and more preferably from about 25% to about 40% almond paste, by weight of the **psyllium**-containing compositions.
- DETD The compositions of the present invention may further comprise other components compatible with the **psyllium** and almond paste, and which are suitable for ingestion. In particular, such components must not significantly reduce the efficacy of the **psyllium** for the therapeutic uses described herein (especially laxation and/or cholesterol reduction). Compositions of the present invention comprise from about 0% . . .
- DETD . . . additional sweetening agents, and more preferably from about 10% to about 40% of such sweetening agents by weight of the **psyllium**-containing compositions.
- DETD The present compositions also optionally comprise other dietary **fiber**, preferably insoluble dietary **fiber**. The term "insoluble dietary **fiber**", as used herein, means the water insoluble, substantially non-swellable component of **fiber** material safe for human ingestion which is non-digestible and non-metabolizable by humans.
- DETD A wide range of materials containing insoluble dietary **fiber** may be used in the present invention. Preferred are cereal brans and mixtures thereof, due to their relatively high content of insoluble dietary **fiber**. Also preferred is that these cereal brans comprise at least about 75% of the insoluble dietary **fiber**. Brans preferred include those selected from the group consisting of wheat, corn, barley, rye, oats, rice, soybean, beets, and mixtures thereof. Most preferred are oat or corn. The components of the insoluble dietary **fiber** from these cereal brans are known to be cellulose, hemicellulose and lignin.
- DETD Compositions of the present invention containing insoluble dietary **fiber** typically comprise from about 1% to about 20% of an insoluble dietary **fiber**, and preferably from about 5% to about 10% insoluble dietary **fiber**, by weight of the compositions.
- DETD . . . (preferably sorbic acid), antioxidants such as ascorbic acid and alpha-tocopherol, and the like. It is also possible to coat the **psyllium**-containing compositions of the present invention with a variety of coating materials. Preferred is coating the entire composition (i.e., enrobing) with . . . about 10% to about 30% of a coating material, preferably a confectionery coating material, by weight of the final coated **psyllium**-containing composition.
- DETD of such treatment a safe and effective amount of a **psyllium**-containing composition of the present invention. Ingestion of from about 2.5 grams to about 30 grams per day of the **psyllium** **fiber** in a composition according to the present invention is appropriate in most circumstances to produce laxation. However, this can vary. . . and condition of the patient, and such matters will, of course, be apparent to the attending physician. However, since the **psyllium** material is nontoxic, even higher ingestion levels can be used without undue side effects. A typical dose for laxation purposes involves administering from about 3 to about 15 grams of **psyllium** **fiber** in one dose.
- DETD . . . administering to a human in need of having a lowered blood cholesterol level a safe and effective amount of a **psyllium**-containing composition of the present invention. Ingestion of compositions of the present invention comprising amounts sufficient to administer from about 2.5 grams to about 30 grams per day of **psyllium** **fiber**, preferably from about 5 grams to about 15 grams, is appropriate in most circumstances. However, this can vary with the . . . and the patient's blood cholesterol level. Such matters will, of course, be apparent to the attending physician. However, since the **psyllium** material is nontoxic, even higher ingestion levels can be used without undue side effects, keeping in mind the

DET D materials herein. . . . levels. Daily ingestion is preferred, and a daily ingestion of from about 5 grams to about 15 grams of the **psyllium fiber** is most commonly used, with said ingestion preferably being at 2 or 3 regularly spaced intervals throughout the day. Again, . . .

DET D A **psyllium**-containing composition according to the present invention is prepared having the following ingredients:

DET D

Ingredients	Weight %
-------------	----------

Psyllium.sup. (1)	18.45
Almond Paste.sup.(2)	29.46
Corn Syrup.sup.(3)	13.75
Powdered Sugar.sup.(4)	12.23
Glycerin	5.94
Cinnamon	0.56
Sorbic Acid	0.11
Nutmeg	0.08
Yogurt Coating.sup.(5)	19.42

.sup.(1) Steam sanitized **psyllium fiber** (95% purity).
.sup.(2) Blanched almond paste (unflavored), by Blue Diamond (Sacramento, Calif., Item Code 0787): 58% blanched almonds, 27.5% sugar,. . .
DET D . . . a separate container, and then transfer to the Sigma mixer and mix for 8 minutes. Add the powdered sugar and **psyllium** to the mixer and mix for 5 minutes. Scrape the blades and mixer and then mix for 2 more minutes.. . .
DET D Ingestion of one piece of this product provides 3.4g of **psyllium** effective for providing laxation benefits. The composition has very good aesthetics and mouthfeel (including very little sticking or impaction of. . .
DET D A **psyllium**-containing product also comprising sennosides for enhanced laxative benefits is prepared having the following ingredients.

DET D

Ingredients	Weight %
-------------	----------

Psyllium	22.91
Powdered Sugar	15.19
Corn Syrup	17.00
Almond Paste	36.28
Glycerin	7.38
Senna.sup.(1)	0.31
Sorbic Acid	0.13
Cinnamon	0.70
Nutmeg	0.10

.sup.(1) 73.1% Sennosides A&B, supplied by Leiras. . .

CLM What is claimed is:

1. A composition comprising: (a) from about 5% to about 50% **psyllium fiber**; (b) from about 10% to about 50% almond paste; and (c) from about 0% to about 85% carrier materials suitable. . .
7. A composition comprising: (a) from about 10% to about 30% **psyllium fiber**; (b) from about 10% to about 45% almond paste, comprising from about 25% to about 60% ground almond by weight.
10. A composition comprising: (a) from about 15% to about 25% **psyllium fiber**; (b) from about 10% to about 40% almond paste, wherein said almond paste comprises from about 25% to about 60%.

human, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing composition according to claim 1.

human, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing composition according to claim 10.

L7 ANSWER 10 OF 13 USPATFULL
AN 92:53101 USPATFULL
TI Compositions containing **psyllium**
IN Piatt, David M., Cincinnati, OH, United States
Courts, Julia M., Cincinnati, OH, United States
Fox, Mary M., Fairfield, OH, United States
PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S.
corporation)
PI US 5126150 19920630
AI US 1990-590982 19901001 (7)
DT Utility
FS Granted
LN.CNT 751
INCL INCLM: 426/094.000
INCLS: 424/439.000; 426/096.000; 426/549.000; 426/574.000; 426/804.000;
514/023.000; 514/892.000
NCL NCLM: 426/094.000
NCLS: 424/439.000; 426/096.000; 426/549.000; 426/574.000; 426/804.000;
514/023.000; 514/892.000
IC [5]
ICM: A21D013-00
ICS: A21D008-00; A21D013-08; A23L001-29
EXF 426/574; 426/804; 426/549; 426/94; 426/96; 424/439; 514/23; 514/892
TI Compositions containing **psyllium**
AB Calcium lactate coated **psyllium fiber** composition
and **psyllium**-containing baked cookie composition having high
fiber content and good eating qualities. These baked cookies
comprise calcium lactate coated **psyllium fiber**,
insoluble dietary **fiber**, shortening, flour, sugar and water.
Eating quality of these **psyllium**-containing cookies is
especially enhanced by their reduced tendency for the composition to
stick to and/or form a film on teeth.
SUMM The present invention relates to calcium lactate coated **psyllium**
compositions, especially high **fiber** baked cookies comprising
calcium lactate coated **psyllium**, and to methods for preparing
these compositions. These cookies essentially comprise calcium lactate
coated **psyllium** and (preferably) insoluble dietary
fiber, flour, shortening and water. These baked cookies have
excellent texture, mouthfeel and palatability. They are useful as
dietary aids in. . . bowel function (including use as laxatives)
and/or for reducing blood cholesterol levels and/or for weight control
or other indications where **fiber** may be beneficial.
SUMM U.S. Pat. No. 4,784,861, to Gori, issued Nov. 15, 1988, describes
powders formed of a mixture of oat, wheat and corn bran mixed
with pectin, **guar gum**, **psyllium** and cutin to which
mineral supplements have been added. U.S. Pat. No. 4,619,831, to Sharma,
issued Oct. 28, 1986, describes dietary **fiber** products
comprising insoluble dietary **fiber** (92-98.5%) coated or
enrobed with soluble dietary **fiber** (1.5-8%; **psyllium**
is mentioned as one of many soluble fibers). U.S. Pat. No. 4,565,702, to
Morley et al., issued Jan. 21, 1986, describes dietary **fiber**
compositions comprising dietary fibers which are insoluble fibers coated
with soluble **fiber**. U.S. Pat. No. 4,348,379, to Kowalsky et
al., issued Sep. 7, 1982, describes dietetic compositions comprising

psyllium seed, linseed, and wheat bran. European Patent Application Publication No. 144,644, published Jun. 19, 1985 by G. D. Searle and Co., describes high fiber food compositions comprising psyllium and other dietary fiber sources.

SUMM . . . Patent Specification 2,430,509, published Jan. 15, 1976 by Hypolab S. A., Genf. (Schweiz), describes preparing compositions containing bulk laxatives (including psyllium mucilloid) in the form of a cake. The cake dough is prepared and baked in molds to produce cakes having. . .

SUMM . . . issued May 26, 1987. This patent indicates that these cookies can optionally include bulking agents such as dietary fibers (including psyllium fiber) at levels up to about 10% by weight of the dough.

SUMM . . . 3, 1981, by Syntex (U.S.A.) Inc., describes compositions comprising mixtures of purified cellulose and pectin as a source of dietary fiber. The effectiveness of these compositions for controlling fecal output in humans is compared versus various other compositions, including biscuits which comprise only psyllium.

SUMM Several other U.S. patents describe non-baked compositions in which psyllium is described as an optional or essential ingredient: 4,778,676, to Yang et al., issued Oct. 18, 1988 (describes chewable compositions comprising a precoated active and a confectionery matrix); 4,766,004, to Moskowitz, issued Aug. 23, 1988 (describes dietary fiber supplement compositions comprising whole psyllium husks having a particle size of from 12 to 70 mesh, food grade vegetable fat which is a solid at room temperature, sweetening agent and flavoring agent); 4,737,364, to Kalogris, issued Apr. 12, 1988 (describes low calorie dry food concentrate); 4,698,232, to Sheu et al., issued Oct. 6, 1987 (describes fiber-containing confectionery compositions comprising dietary fiber pretreated with a lubricant, a foamed matrix, and an amorphous matrix); and 4,551,331, to Rudin, issued Nov. 5, 1985 and R.E. 32,811, issued Dec. 27, 1988 (describe dietary fiber products comprising a dietary fiber coated with a food grade emulsifier).

SUMM In spite of the large amount of research aimed at developing portable and palatable compositions containing psyllium, there is a continuing need to provide additional compositions having psyllium at levels high enough to provide therapeutic benefits in reasonably sized, portable compositions having good eating aesthetics. It has been discovered that such compositions can be prepared in the form of a cookie by using calcium lactate coated psyllium, preferably along with insoluble fiber. The psyllium fiber coating comprises the polyvalent cation-containing material calcium lactate, and also preferably a Type A gelatin is employed to further coat the calcium lactate coated psyllium fibers. By using the calcium lactate coated psyllium fiber in these compositions, it has been surprisingly discovered that the eating quality of the cookie compositions are greatly enhanced, especially. . . compositions, and the methods for making them, are also well suited for large scale manufacture of portable, palatable and efficacious psyllium-containing cookies.

SUMM . . . of the present invention to provide compositions which are convenient, portable and highly palatable (e.g., having excellent texture and mouthfeel) psyllium-containing cookies. An object of the present invention is also to provide convenient, portable psyllium-containing compositions having good consumer acceptance to promote compliance with a regimen for providing laxation benefits and/or reducing serum cholesterol levels and/or weight control. A further object is to provide psyllium-containing compositions having little or no gummy or rubbery texture and reduced stickiness during ingestion. Also, an object is to provide portable psyllium-containing compositions which are efficacious for

- providing laxation benefits and/or reducing serum cholesterol levels. Further, an object is to provide highly palatable compositions which provide both **psyllium fiber** and calcium. An object of the present invention is also to provide methods for preparing these efficacious baked cookie compositions.
- SUMM The present invention relates to calcium lactate coated **psyllium** compositions. These compositions comprise from about 0.5% to about 10% of calcium lactate, and from about 85% to about 99.5% **psyllium fiber**, wherein the calcium lactate coats the **psyllium fiber**. Preferred is such compositions further comprising from about 1% to about 5% of Type A gelatin, wherein this gelatin also coats the calcium lactate coated **psyllium fiber**.
- SUMM The present invention also relates to highly palatable **psyllium**-containing baked cookie compositions. These compositions comprise: from about 10% to about 20% calcium lactate coated **psyllium fiber**, from about 13% to about 20% of a shortening component, from about 10% to about 40% of a flour component, . . . component, from about 1.5% to about 3.5% water, and preferably from about 3% to about 17% of an insoluble dietary fiber.
- SUMM . . . methods for making the baked cookie compositions of the present invention. These methods comprise the steps of: (a) coating the **psyllium** fibers with calcium lactate and, optionally, Type A gelatin; (b) mixing to a uniform mass either sequentially or all at once the calcium lactate coated **psyllium fiber** (and preferably the insoluble fiber) with the remaining components of the cookie dough; and (c) baking the dough to reduce the water content of the. . .
- DETD Calcium Lactate Coated **Psyllium** Compositions
- DETD The present invention relates to calcium lactate coated **psyllium fiber** compositions. These compositions comprise **psyllium** fiber coated with calcium lactate, and preferably also with Type A gelatin.
- DETD (a) **Psyllium Fiber**
- DETD The term "psyllium fiber", as used herein, means the seed coat of **psyllium** seed (either intact or macerated or otherwise comminuted). **Psyllium fiber** comes from **psyllium** seed, from plants of the Plantago genus. Various species such as Plantago lanceolate, P. rugelii, and P. major, are known. Commercial **psyllium** includes the French (black; Plantago indica), Spanish (P. **psyllium**) and Indian (blonde; P. ovata). Indian (blonde) **psyllium** is preferred for use herein.
- DETD . . . to Leland et al., incorporated herein by reference in its entirety) prior to use in the present composition. Furthermore, the **psyllium fiber** utilized preferably has high purity, being about 85% to about 100% pure, and more preferably being about 95% to about . . .
- DETD The calcium lactate coated **psyllium** composition comprises from about 85% to about 99.5%, preferably from about 85% to about 98.5%, and more preferably from about 90% to about 97%, **psyllium fiber** by weight of the coated compositions.
- DETD According to the present invention, calcium lactate is used to coat the **psyllium** fibers. The term "coat", as used herein, means attaching the coating material (calcium lactate and/or Type A gelatin, if it is used) to the **psyllium fiber**, preferably by forming a layer of coating material on or around the **psyllium** fibers. One source of calcium lactate is a granular calcium lactate pentahydrate sold by Gallard-Schlesinger Industries Inc., N.Y.
- DETD The coating of the **psyllium fiber** may be achieved by spraying or otherwise wetting the **psyllium fiber** with an aqueous solution of calcium lactate, preferably an aqueous solution of calcium lactate containing 10% calcium lactate. (Preferred methods for coating the **psyllium fiber** are described in more detail hereinafter.) The calcium lactate coated **psyllium** compositions typically comprise from about 0.5% to about 10%, preferably

DET D from about 3% to about 7%, of calcium lactate by. . . .
A preferred optional component useful in the **psyllium**
fiber coating is Type A gelatin. The term "Type A gelatin", as
used herein, means a gelatin formed by acid hydrolysis. . . .

DET D Preferably, the Type A gelatin is applied as a further coating to the
calcium lactate coated **psyllium fiber**. This
preferably may be achieved by spraying or otherwise wetting the calcium
lactate coated **psyllium fiber** with an aqueous
mixture of Type A gelatin, preferably 10% by weight of the aqueous
composition. The calcium lactate coated. . . .

DET D Baked Cookie Compositions Containing **Psyllium**

DET D The present invention further relates to high **fiber**
psyllium-containing baked cookie compositions comprising calcium
lactate coated **psyllium fiber**. These baked cookie
compositions comprise: (a) calcium lactate coated **psyllium**
fiber; (b) insoluble dietary **fiber**; (c) shortening
component; (d) flour component; (e) sugar component; and (f) water. The
essential and optional components for use in. . . .

DET D (a) Calcium Lactate Coated **Psyllium**

DET D The present cookie compositions comprise **psyllium**
fiber coated with calcium lactate (and preferably also Type A
gelatin) as described hereinbefore. The baked cookie compositions of the
present invention essentially comprise from about 10% to about 20%
calcium lactate coated **psyllium fiber**, preferably
from about 11% to about 18% calcium lactate coated **psyllium**
fiber, and more preferably from about 12% to about 15% calcium
lactate coated **psyllium fiber**, by weight of the
baked composition.

DET D (b) Insoluble Dietary **Fiber**

DET D The present cookies also preferably comprise insoluble dietary
fiber. The term "insoluble dietary **fiber**", as used
herein, means the water insoluble, substantially non-swellable component
of **fiber** material safe for human ingestion which is
non-digestible and non-metabolizable by humans.

DET D A wide range of materials containing insoluble dietary **fiber**
may be used in the present invention. Preferred are cereal brans and
mixtures thereof, due to their relatively high content of insoluble
dietary **fiber**. Also preferred is that these cereal brans
comprise at least about 75% of the insoluble dietary **fiber**.
Cereal brans useful in the present invention include those selected from
the group consisting of wheat, corn, barley, rye, oats and mixtures
thereof. Most preferred are **oat** or corn. The components of the
insoluble dietary **fiber** from these cereal brans are known to
be cellulose, hemicellulose and lignin.

DET D When the insoluble dietary **fiber** content of a composition of
the present invention is to be determined, an analytical technique which
may be used is disclosed in the Association of Analytical Chemist
publication "Total Dietary **Fiber**: AOAC Collaborative Study",
Jan. 25, 1982, incorporated herein by reference in its entirety. This
technique utilizes enzymatic and chemical procedures to isolate the
dietary **fiber**. When wheat bran or corn bran for example is
treated according to this AOAC method, the recoverable dietary
fiber is an insoluble **fiber**. The bran is first treated
with a solvent, e.g., petroleum ether or hexane, to remove the fat. The
defatted bran. . . . the bran is treated with alpha or beta-amylase and
amyloglucosidase. The recoverable material is protein-free, fat-free and
carbohydrate-free insoluble dietary **fiber** The insoluble
dietary **fiber** content of a variety of dietary **fiber**
sources are also disclosed in publications, including for example "Plant
Fiber in Foods" by James W. Anderson, M. D. (published by the
HCF Diabetes Research Foundation, Inc., Lexington, Ky.; 1986),
incorporated. . . .

DET D present invention comprise from about 0% to about 17%,
preferably from about 3% to about 17% of an insoluble dietary

- fiber**, more preferably from about 5% to about 10% insoluble dietary **fiber**, and most preferably from about 6% to about 8% insoluble dietary **fiber**, by weight of the baked compositions.
- DETD The cookie compositions of the present invention may further optionally comprise other components compatible with the **psyllium** and other essential cookie components, and which are suitable for ingestion. In particular, such components must not significantly reduce the efficacy of the **psyllium** for the therapeutic uses described herein (especially laxation and/or cholesterol reduction).
- DETD Method for Coating the **Psyllium** Fibers
- DETD Prior to preparing the cookie composition of the present invention, the **psyllium** fibers must be coated with calcium lactate to form the calcium lactate coated **psyllium** compositions as described hereinbefore. This coating aids in improving the aesthetics and mouthfeel of the present cookie compositions.
- DETD The first step in coating the **psyllium** fibers is preferably to prepare a calcium lactate solution comprising from about 1% to about 30% by weight of calcium. . .
- DETD Once the solution is prepared, the next step typically is to apply the calcium lactate solution onto the **psyllium** fibers. The application of calcium lactate solution is best achieved by spraying the calcium lactate solution onto the **psyllium** fibers with appropriate coating equipment known in the art. One example of such equipment is a GPCG 60-18 inch Wurster. . .
- DETD The **psyllium** fibers become coated by the calcium lactate in solution. This coating is accomplished by passing the **psyllium** fiber particles through a zone of finely atomized droplets of calcium lactate coating solution. As the coated **psyllium** fiber particles move up and away from the coating nozzle, the coating begins to solidify as the particles dry and the coated **psyllium** fiber is formed. Spraying is preferably continued until the coating of calcium lactate comprises from about 0.5% to about 10% by weight of the **psyllium** fiber, and more preferably from about 3% to about 7% by weight of the **psyllium** fiber. The calcium lactate coated **psyllium** fiber is then preferably dried to a moisture level of from about 5% to about 10%, and most preferred is a. . .
- DETD If desired, the optional Type A gelatin coating may be applied to the calcium lactate coated **psyllium** fibers. This may be achieved by first dissolving Type A gelatin in an aqueous solution comprising from about 2% to. . . described hereinabove, until the coating of Type A gelatin comprises from about 1% to about 5% by weight of the **psyllium** fiber, and more preferably from about 1.5% to about 2.5% of a Type A gelatin by weight of the **psyllium** fiber. Preferably, the Type A gelatin is sprayed onto core material consisting of the calcium lactate coated **psyllium** fibers.
- DETD . . . form the present cookie compositions may be prepared in any manner which does not substantially reduce the efficacy of the **psyllium** for the therapeutic uses described herein (especially laxation and/or cholesterol reduction), the present invention further relates to a method for preparing the present cookie compositions. This method comprises the steps of: (a) coating the **psyllium** fibers with calcium lactate and, optionally, Type A gelatin; (b) mixing to a uniform mass either sequentially or all at once the calcium lactate coated **psyllium** fiber (and preferably the insoluble dietary **fiber**) with the remaining components of the cookie dough; and (c) baking the dough to reduce the water content of the. .
- DETD More preferred is the method comprising the steps of: (a) coating the **psyllium** fibers with calcium lactate and Type A gelatin; (b) mixing to a uniform mass the calcium lactate coated **psyllium** fiber and insoluble dietary **fiber** with a saturated aqueous solution of sugar components (wherein said saturated sugar

DET D solution comprises from about 12% to about 28%. . . . treatment. This method comprises administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing cookie composition of the present invention. Ingestion of from about 2.5 grams to about 30 grams per day of the **psyllium fiber** in a cookie composition according to the present invention is appropriate in most circumstances to produce laxation. However, this can. . . . and condition of the patient, and such matters will, of course, be apparent to the attending physician. However, since the **psyllium** material is nontoxic, even higher ingestion levels can be used without undue side effects. A typical dose for laxation purposes involves administering from about 3 to about 15 grams of **psyllium fiber** in one dose.

DET D . . . administering to a human in need of having a lowered blood cholesterol level a safe and effective amount of a **psyllium**-containing cookie composition of the present invention. Ingestion of compositions of the present invention comprising amounts sufficient to administer from about 2.5 grams to about 30 grams per day of **psyllium fiber**, preferably from about 5 grams to about 15 grams, is appropriate in most circumstances. However, this can vary with the. . . . and the patient's blood cholesterol level. Such matters will, of course, be apparent to the attending physician. However, since the **psyllium** material is nontoxic, even higher ingestion levels can be used without undue side effects, keeping in mind the materials herein. . . .

DET D . . . levels. Daily ingestion is preferred, and a daily ingestion of from about 5 grams to about 15 grams of the **psyllium fiber** is most commonly used, with said ingestion preferably being at 2 or 3 regularly spaced intervals throughout the day. Again, .

DET D A **psyllium**-containing cookie composition according to the present invention is prepared having the following components:

DET D b) Steam sanitized, sized **psyllium** mucilloid coated with calcium lactate (5%) and Type A gelatin (1.8%) as described hereinafter

DET D c) 80% microfine oat hull fiber sold by Canadian Harvest, St. Thomas, Ontario, Canada; approximately 80% insoluble fiber

DET D f) About 6.2% insoluble dietary fiber

DET D A. Procedure to coat the **psyllium fiber**:

DET D 3. Spray the **psyllium** fibers using the Wurster coater, described hereinabove, until the **psyllium** fibers are encapsulated with 5% calcium lactate by weight of the **psyllium fiber**.

DET D 4. Dry the calcium lactate-encapsulated **psyllium** fibers to a moisture level of 7.7%.

DET D 7. Spray the calcium lactate-encapsulated **psyllium** fibers, using the Wurster coater, described hereinabove, until the calcium lactate coated **psyllium** fibers are coated with 1.8% Type A gelatin by weight of the calcium lactate coated **psyllium fiber**.

DET D A suitable alternate coating may be prepared for the **psyllium fiber** by deleting steps (5) through (7) and coating the **psyllium fiber** with only calcium lactate, using the procedure described in steps (1) through (4) hereinabove.

DET D B. Procedure for manufacturing **psyllium**-containing cookie composition:

DET D 2. Add calcium lactate coated **psyllium**, oat fiber, corn oil and lecithin to the mixer and mix 2 minutes; on a wire mesh belt for approx. 10 minutes. These baked cookies contain the following amounts of essential ingredients: 13.05% **psyllium fiber**; 0.76% calcium lactate; 0.31% Type A gelatin; 7.08% insoluble dietary fiber; 16.74% shortening component; 18.22% flour component; 27.32% sugar component; and 2.2% water.

DETD . . . in need of laxation provides effective laxative benefits and regulates bowel function. These cookies are convenient to use and provide **psyllium** in a very palatable form.

CLM What is claimed is:

1. Calcium lactate coated **psyllium fiber** composition comprising: (a) from about 85% to about 99.5% **psyllium fiber**; (b) from about 0.5% to about 10% of calcium lactate coating on the **psyllium fiber**; and (c) from about 0% to about 5% of Type A gelatin coating on the **psyllium fiber**.
2. Calcium lactate coated **psyllium fiber** composition according to claim 1 wherein the **psyllium** fibers are coated with from about 3% to about 7% of calcium lactate and from about 1.5% to about 2.5%. . .
3. Calcium lactate coated **psyllium fiber** composition according to claim 2 wherein said composition is manufactured by a process wherein the **psyllium** fibers are first coated with calcium lactate followed by coating with Type A gelatin.
4. **Psyllium**-containing baked cookie composition comprising: (a) from about 10% to about 20% calcium lactate coated **psyllium fiber**; (b) from about 0% to about 17% of an insoluble dietary fiber; (c) from about 13% to about 20% of a shortening component; (d) from about 10% to about 40% of a. . .
5. **Psyllium**-containing baked cookie composition according to claim 4 wherein the calcium lactate coated **psyllium fiber** comprises from about 0.5% to about 10% calcium lactate by weight of the coated **psyllium fiber**.
6. **Psyllium**-containing baked cookie composition according to claim 5 wherein the calcium lactate coated **psyllium fiber** comprises from about 3% to about 7% calcium lactate by weight of the coated **psyllium fiber**.
7. **Psyllium**-containing baked cookie composition according to claim 4 wherein the calcium lactate coated **psyllium fiber** comprises, by weight of the coated **psyllium fiber**: (a) from about 85% to about 99.5% **psyllium fiber**; (b) from about 0.5% to about 10% of calcium lactate coating on the **psyllium fiber**; and (c) from about 0% to about 5% of a Type A gelatin coating on the **psyllium fiber**.
8. **Psyllium**-containing baked cookie compositions according to claim 7 wherein the calcium lactate coated **psyllium fiber** comprises, by weight of the coated **psyllium fiber**: (a) from about 3% to about 7% of calcium lactate coating on the **psyllium fiber**; and (b) from about 1.5% to about 2.5% of a Type A gelatin coating on the calcium lactate coated **psyllium fiber**; and wherein the **psyllium** fibers are first coated with calcium lactate followed by coating with Type A gelatin.
9. **Psyllium**-containing baked cookie composition according to claim 4 wherein the insoluble dietary **fiber** comprises from about 3% to about 17% of one or more cereal brans.
10. **Psyllium**-containing baked cookie composition according to claim 9 wherein the insoluble dietary **fiber** comprises cereal bran selected from the group consisting of wheat, corn, barley, rye, oats and mixtures thereof.
11. **Psyllium**-containing baked cookie composition according to

claim 4 wherein the shortening component comprises a non-absorbable, non-digestible fatty acid ester of polyols.

12. **Psyllium**-containing baked cookie composition according to claim 4 further comprising sennoside.

13. A method for making a **psyllium**-containing baked cookie composition according to claim 4, said method comprising the steps of: (a) coating the **psyllium** fibers with calcium lactate and, optionally, Type A gelatin; (b) mixing to a uniform mass, either sequentially or all at once, the calcium lactate coated **psyllium** fiber with the remaining components of the cookie dough; and (c) baking the dough to reduce the water content of the.

14. A method for making a **psyllium**-containing baked cookie composition according to claim 13 wherein insoluble dietary fiber is mixed into the mass during step (b).

15. A method for making a **psyllium**-containing baked cookie composition according to claim 4, said method comprising the steps of: (a) mixing to a uniform mass a calcium lactate coated **psyllium** fiber composition comprising from about 85% to about 99.5% **psyllium** fiber and from about 0.5% to about 10% of calcium lactate coating on the **psyllium** fiber and from about 0% to about 5% of Type A gelatin coating on the **psyllium** fiber either sequentially or all at once, with the remaining components of the cookie dough; and (b) baking the dough to.

16. A method for making a **psyllium**-containing baked cookie composition according to claim 15 wherein said calcium lactate coated composition comprises **psyllium** fibers first coated with from about 3% to about 7% of calcium lactate followed by coating with from about 1.5%.

human, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing baked cookie composition according to claim 4.

human, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing baked cookie composition comprising sennosides according to claim 9.

humans, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing baked cookie composition according to claim 4.

humans, said method comprising administering to a human in need of such treatment a safe and effective amount of a **psyllium**-containing baked cookie composition comprising a non-absorbable, non-digestible fatty acid ester of polyols according to claim 11.

L7 ANSWER 11 OF 13 USPATFULL

AN 91:50460 USPATFULL

TI R-T-E cereal with **psyllium**

IN Ringe, Mitchell L., Maple Grove, MN, United States

Stoll, James R., Maple Grove, MN, United States

PA General Mills, Inc., Minneapolis, MN, United States (U.S. corporation)

PI US 5026689 19910625

AI US 1989-330245 19890329 (7)

DT Utility

FS Granted

LN.CNT 733

INCL INCLM: 514/057.000

INCLS: 424/439.000; 424/441.000; 426/002.000; 426/003.000; 426/560.000;

426/620.000; 426/621.000; 426/800.000; 426/804.000; 426/808.000;
514/054.000

NCL NCLM: 514/057.000
NCLS: 424/439.000; 424/441.000; 426/002.000; 426/003.000; 426/560.000;
426/620.000; 426/621.000; 426/800.000; 426/804.000; 426/808.000;
514/054.000

IC [5]
ICM: A23L001-42
ICS: A23L001-29; A21D008-00; A21D013-00

EXF 426/2; 426/3; 426/800; 426/804; 426/808; 426/560; 426/620; 426/621;
514/54; 514/57; 424/195.1; 424/439; 424/441

TI R-T-E cereal with **psyllium**

AB Disclosed are ready-to-eat cereals containing high levels of **psyllium** husk and methods for their preparation. The cereals contain about 2% to 37% **psyllium**, about 20% to 80% of a starchy cereal component, and about 5% to 15% insoluble **fiber**. The weight ratio of soluble to insoluble **fiber** ranges from about 1 to 5:1. The total fructose content is less than about 5%. The minimum soluble **fiber** content is 3 g/oz.

SUMM . . . present invention relates to food products and to their methods of preparation. More particularly, the present invention relates to high **fiber**, ready-to-eat ("R-T-E") cereal products and to their methods of preparation.

SUMM . . . items. R-T-E cereals exist in large numbers of varieties. R-T-E cereals, especially whole grain, are known as good sources of **fiber**. A good description of the literature pertaining to the health discussion on the role of **fiber** is found in U.S. Pat. No. 4,777,045 (issued Oct. 11, 1988 to Vanderveer et al. and is entitled High Bran Snack) which is incorporated herein by reference. In view of the health interest in **fiber**, high **fiber** cereals are increasingly popular. These cereals contain added levels of **fiber** sources, especially corn and wheat bran, and range generally from about 2-5 g **fiber**/oz cereal. Generally, the **fiber** is predominantly of the insoluble type. Some cereals are formulated from all bran sources and can contain up to 8-10 g/oz **fiber**. High **fiber** cereals using purified insoluble **fiber** sources and artificial sweeteners can even contain as high as 8-13 g **fiber**/oz of cereal.

SUMM While popular, high **fiber** cereals are not without disadvantages. The primary concern is with the organoleptic qualities of the R-T-E cereal. Generally, as the concentration of **fiber** increases, the starchy components decrease, adversely affecting the cereals organoleptic and physical properties. High **fiber** cereals are often dry, exhibit short bowl lives and yield highly frangible food pieces. Second, while most **fiber** rich R-T-E cereals have higher levels of insoluble fibers, present consumer interest is focused upon cereals containing oat bran which is a rich source of soluble **fiber**. There is a growing awareness of the health benefits to people associated with soluble **fiber** consumption, especially reductions in blood serum cholesterol, i.e., antihypercholesterolemic benefits. Unfortunately, cereals high in soluble fibers typically are gummy or. . .

SUMM The present invention is directed towards the provision of a high **fiber** R-T-E cereal with superior organoleptic attributes or qualities. Surprisingly, the present invention provides such a superior quality high **fiber** R-T-E cereal which nonetheless contains a high concentration of soluble **fiber**. Moreover, in preferred embodiments, the present cereal compositions provide high **fiber** cereals having soluble **fiber** predominating. The present invention resides in part in the particular selection of **psyllium** as the soluble **fiber** source.

SUMM **Psyllium** is a well known material long used as a bulk **fiber** source in laxative compositions to be added to liquids (see, for example, U.S. Pat. No. 4,459,280, issued Jul. 10, 1984, to

Colliopoulos et al. and which is incorporated herein by reference). Moreover, **psyllium** husk rich **fiber** supplement compositions are known (U.S. Pat. No. 4,766,004, issued Aug. 23, 1988, to Moskowitz entitled Crunchy, Highly Palatable, Bulk-Increasing, Dietary **Fiber Supplement** Composition) discloses a crunchy **psyllium**-containing composition comprising a flavored, sweetened, vegetable fat and optionally other fibers.

SUMM Other high **fiber** food products containing other **fiber** sources are well known. For example, U.S. Pat. No. 4,568,557, to Becker et al., discloses a snack food product prepared by premixing a dietary **fiber** with a food grade oil; premixing a compound coating containing a fractionated fat, sweetener, milk solids, yogurt, and a **flavoring agent**; blending the two pre-mixtures and adding a cereal product to obtain texture and a dried fruit or nut for flavor; . . .

SUMM . . . these references disclose compositions of improved palatability, the taste of most products, especially R-T-E cereals, containing a sufficient amount of **fiber**, especially soluble, to be efficacious continues to be a problem. Those products which are particularly rich in **fiber** generally employ a fat or oil to increase the palatability of the products to mask partially the dryness and/or grittiness of most **fiber** sources. Thus, it is quite surprising that whole **psyllium** husks, when admixed with other **fiber** sources and a starchy cereal component will provide a crunchy, organoleptically pleasing efficacious R-T-E cereal which does not require high. . .

SUMM . . . and R-T-E cereals fabricated therefrom as well as to methods for preparing such R-T-E cereals. The cereal compositions essentially comprise **psyllium** husk, a starchy cereal component, and an insoluble **fiber** source. The cereal contains at least 3 g/oz of soluble **fiber**. The cereal composition is further defined by the weight ratio of soluble to insoluble **fiber** and maximum fat and fructose levels. Notwithstanding higher concentrations of water soluble **fiber** and the absence of added fat, the R-T-E cereals are organoleptically desirable. The R-T-E cereal products are further essentially defined by limited concentrations of fructose. In another embodiment, the present invention provides oat or oat bran R-T-E cereals fortified with respect to soluble **fiber** content by incorporation therein with **psyllium**.

SUMM In one method aspect, the present invention resides in methods for preparing the present, high soluble **fiber** and **psyllium** containing R-T-E cereal. The methods essentially comprise blending the cereal ingredients with controlled amounts of water, cooking the mixture to. . .

SUMM The present invention relates to R-T-E cereals containing high levels of **psyllium** to methods for their preparation and to methods of reducing blood serum cholesterol by consumption of such cereals. In addition to conventional cereal ingredients, the present cereals additionally comprise **psyllium** and insoluble **fiber** sources. Each of these product constituents, as well as their method for preparation and use are described in detail below. . .

SUMM **Psyllium** seed gum is well known and has a long history of use by humans and is a staple of commerce. The sourcing and use of **psyllium** is well described in various sources including Industrial Gums: Polysaccharides and Their Uses, second edition, edited by Whistler et al.. . .

SUMM Generally, **psyllium** husks are the clean, dried seed coat material which is separated by winnowing and thrashing from the seeds of *Plantago ovata*, known in commerce as blanc **psyllium**, Indian **psyllium** or ispaghula. French (black) **psyllium** comes from *Plantago indica* and occasionally from Spain as well. Both **psyllium** seed and **psyllium** husk are classified as bulk forming laxatives. As used in the present invention, the noun "

- psyllium**" is meant to refer to **psyllium** husks and not to **psyllium** seed or to **psyllium** seed gum.
- Psyllium** seed gum is not intended to be embraced herein by the term "**psyllium**."
- SUMM **Psyllium**, or synonomously **psyllium** husks, as noted briefly above, is prepared by abraiding **psyllium** seed to separate the **psyllium** husk or mucilage from the seed core. **Psyllium** husk is available in various commercial grades. First cut or highest grade **psyllium** is preferred due to its higher concentration of water soluble **fiber**. However, first cut **psyllium** or high grade **psyllium** is more expensive. Second cut, or blends of first cut with second cut, are less desirable due to their lower soluble **fiber** content but, generally, are nonetheless more preferred for use herein due to their lower cost/value relationship.
- SUMM The present cooked cereal compositions essentially comprise sufficient amounts of **psyllium** alone, or in combination with other soluble **fiber** providing components, so as to provide the cereal compositions with a soluble **fiber** content of at least 3 g/oz. In the practice of the present invention, good results are obtained when the first pass (a purity level of about 95%) or second pass **psyllium** (about 85% purity) comprises about 2% to about 37% of the cereal composition in order to obtain the benefits of good organoleptic properties together with the advantages of dietary **fiber**. Better results in terms of balancing the health benefits efficacy, especially antihypercholesterolemic activity, balanced with acceptable organoleptic attributes are obtained when the **psyllium** is present at a concentration range of from about 5% to 15% by weight of the cereal, and for best results about 9%. Generally, higher amounts of second pass, lower soluble **fiber** content **psyllium** are needed than when first pass **psyllium** with a higher soluble **fiber** content is employed.
- SUMM When **psyllium** is used alone as the principle soluble **fiber**, i.e., when neither significant levels of pectin, oat bran or oat flour or other concentrated soluble **fiber** sources are employed, then the R-T-E cereals essentially comprise about 15% to 37% **psyllium** in order to provide sufficient amounts of soluble **fiber** to realize at least 3 g/oz soluble **fiber**.
- SUMM It is important that the present cereal compositions have an insoluble **fiber** component as well as a soluble **fiber** component. High concentrations of soluble fibers in R-T-E cereal compositions can, however, result in undesirable organoleptic attributes including upon consumption. . . or gummy texture. Of course, utilization of cereal flours as described above will provide R-T-E cereal compositions with some insoluble **fiber** concentration, particularly when whole grain, e.g., whole wheat, flours are employed. The skilled artisan will appreciate that minor amounts of soluble **fiber** are associated with most cereal grains with the exception of oat flour or oat bran which provides comparatively high levels of soluble **fiber**. Generally, however, it has been found necessary to incorporate into the R-T-E cereal composition supplemental materials which are rich in insoluble **fiber**. Such addition is desirable in order to achieve the weight ratios of soluble to insoluble fibers surprisingly found to be essential and effective for the realization of high **fiber** R-T-E organoleptically superior cereals of the present invention.
- SUMM Suitable materials for use herein as insoluble **fiber** sources are well known and the skilled artisan will have no difficulty in selecting materials suitable for use herein. Especially useful herein as sources of insoluble **fiber** are cereal brans including wheat bran, corn bran, rice bran, oat bran, rye bran, barley and mixtures thereof. It will be appreciated that such sources may also contribute minor amounts of soluble **fiber** as well. Also useful

- herein are noncereal fiber sources including cellulose flour, cellulose fiber, sugar beet fiber, etc. Sugar beet fiber can comprise up to 80% total dietary fiber with about 20% soluble fiber and 60% insoluble fiber. Sufficient amounts of these materials are used so as to achieve the weight ratio of soluble to insoluble fibers herein.
- SUMM The measurement of total dietary fiber, soluble fiber, and insoluble fiber is subject to disparate analytical methods and values determined thereby. For purposes of the present invention, "soluble" and "insoluble" fiber values are to be determined by an accepted test procedure for fiber developed by Prosky et al. and described in "Determination of Insoluble, Soluble and Total Dietary Fiber in Foods and Food Products," Journal of the Association of Official Analytical Chemists, Vol. 71, No. 5 (1988) which is. . .
- SUMM The present R-T-E cereal compositions can include additional or supplemental sources of soluble fiber in addition to psyllium. One possible, although expensive, source of soluble fiber is to employ commercially available high methoxyl pectin. While desirable due to its cost and availability, the utilization of pectin aggravates the problems of providing organoleptically acceptable cereal products. Accordingly, when pectin is used to provide additional soluble fiber, generally lower ratios of soluble to insoluble fiber are preferred. Other useful sources of soluble fiber include oat bran, guar gum, carboxymethyl cellulose and mixtures thereof. If present, each of these supplemental soluble fiber sources can comprise from about 0.1% to 60%, and, preferably, when used in addition to oat bran, about 1% to 5% of the present compositions.
- SUMM Additionally, the present cereal compositions can include oat bran. Furthermore, oat bran has a fiber fraction in addition to the high cereal or starchy fraction. Oat bran is a concentrated source of a soluble fiber and can comprise at least 6% soluble fiber (about 1.7 g/oz) as well as at least 6% insoluble fiber (about 1.7g/oz). Accordingly, inclusion of oat bran into the present R-T-E cereal composition simultaneously can provide the present essential starchy cereal component, a soluble fiber component, and an insoluble fiber component. The soluble to insoluble fiber ratio of oat bran is approximately 1:1. The oat bran can comprise from about 10% to about 60% of the cereal composition. Better results in terms of organoleptic attributes are obtained when the oat bran comprises from about 12% to about 50% by weight of the composition, and for best results about 40%. Thus, in one embodiment, the present invention provides an oat flour and/or oat bran R-T-E cereal fortified with respect to soluble fiber by inclusion of psyllium when oat flour and/or oat bran is the major starchy cereal component.
- SUMM For good results, the soluble to insoluble fiber ratio ("S/I" ratio) of the present R-T-E cereals can range from at least about 0.5:1. When pectin is employed as a secondary soluble fiber source, the S/I ratio is essentially at least 0.8:1. Better results are obtained when the S/I ratio is at least. . . . the R-T-E cereal. It has surprisingly been found that fructose appears to adversely affect the antihypercholesterolemic efficacy of the soluble fiber content. This restriction of fructose content includes both any fructose in the base cereal and any fructose associated with any. . . . component is quite low. The fat content results from the native fat associated with the starchy cereal component(s) and the psyllium. Permissible low fat additions can also result from adding emulsifiers and from vitamin or flavor addition. However, the total fat. . . .
- SUMM Fiber, especially insoluble fiber, is believed to

SUMM affect adversely selected mineral and vitamin absorption. Accordingly, in highly preferred embodiments, in particular, the present R-T-E . . . formation. That is, during admixture or cooking, only low shear blending should be employed. High shear treatment of the soluble fiber also appears to adversely affect the efficacy of the soluble fiber. Thus, those cereal preparation methods and equipment designed to provide high shear cooking of cereal doughs, e.g., twin screw extruders. . .

SUMM . . . to 60% moisture, preferably about 25% to 35% moisture. Excessive moisture addition can result in excessive water absorption by the fiber component. Such excessive water absorption not only can result in processing and handling problems, but also, and more importantly, in. . .

SUMM The present R-T-E cereal pieces are further essentially characterized by high levels of soluble fiber. The present R-T-E cereals essentially comprise at least 3 g/oz of soluble fiber. Preferred cereals are essentially further defined by soluble fiber contents ranging from about 4 to 6 g/oz of soluble fiber. For best results, the soluble fiber content is about 12%. Good results are obtained and the present compositions essentially are defined when the cereal compositions comprise about 11% to 30% soluble fiber (3 to 8 g/oz). Preferred compositions comprise about 11% to 21% soluble fiber (3 to 6 g/oz).

SUMM . . . present invention can be consumed in a conventional manner to obtain the nutritional and physiological benefits of a high soluble fiber cereal food. In particular, it has been surprisingly discovered that the present cereal compositions when consumed regularly in prescribed dosage. . .

DETD A ready-to-eat cereal composition of the present invention having high levels of soluble fiber was prepared according to the following procedure. A dry blend, a wet blend, and a sugar coating composition were separately. . .

DETD

Ingredients	Weight %
-------------	----------

A. Base Dry Blend

Oat bran	41.50
Rice flour	37.20
Psyllium - 85% purity	8.50
(i.e., 85% gum-containing husk)	
Insoluble fiber (sugar beet fiber)	6.30
Wheat bran	2.10
Sucrose	2.10
Guar gum	1.25
Sodium bicarbonate	0.35
Trisodium phosphate	0.30
Vitamin blend	0.08
	100.00%

B. Malt Syrup/Color Blend

Malt syrup	44.20
Corn syrup	44.10
Food grade color	11.60
Potassium sorbate	. . .

DETD . . . approximately 10% added slurry. The coated flakes were then dried to a final moisture of about 2.0%. The high soluble fiber R-T-E cereal so prepared was then conventionally packaged.

DETD The final product had a soluble fiber content of 3.0 g/oz and an insoluble fiber content of 3.0 g/oz giving a soluble to insoluble fiber ratio of 1:1. The total fructose concentration of the sugar coated R-T-E cereal was about 4%. The total fat content. . .

DETD A ready-to-eat cereal composition of the present invention having high levels of soluble **fiber** is prepared according to the following procedure. A dry blend, a wet blend and a sugar coating composition were separately. . .

DETD

Ingredients	Weight %
-------------	----------

A. Dry Base Blend

Whole wheat	66.32
Psyllium - 85% purity	
15.00	
White wheat bran	8.00
Sugar	7.50
Salt	1.50
Guar gum	1.20
Vitamin blend	0.40
Trisodium phosphate	
0.08	
100.00%	

B. Malt Syrup Slurry

Water	92.00
Cereal malt syrup	7.90
Food coloring	0.10
(e.g. Annatto)	
	100.00%

C. Sugar Slurry

Sugar. . .

DETD The final product has a soluble **fiber** content of 3.31 g/oz and an insoluble **fiber** content of 3.2 g/oz giving a soluble to insoluble **fiber** ratio of 1:1. The total fructose concentration of the sugar coated R-T-E cereal is about 5%. The total fat content. . .

DETD An R-T-E cereal of the present invention having high levels of soluble **fiber** is prepared according to the following procedure. A dry blend, a wet blend and a sugar coating composition were separately. . .

DETD

Ingredients	Weight %
-------------	----------

A. Dry Base Blend

Yellow corn cones	37.55
Oat bran	27.00
Psyllium - 85% purity	
24.00	
Sugar	5.00
Heavy wheat bran	4.00
Guar gum	1.20
Salt	0.50
Sodium bicarbonate	0.35
Trisodium phosphate	0.30
Vitamin blend	0.40
	100.00%

B. Malt Syrup/Color Blend

Malt syrup	44.20
Corn syrup	44.10
Food grade color	11.60
Potassium.	

DETD The final product has a soluble **fiber** content of 5.4 g/oz and an insoluble **fiber** content of 1.8 g/oz giving a soluble to insoluble **fiber** ratio of 3:1. The total fructose content of the sugar coated flake is less than 5%. The total fat content. . .

DETD

Ingredients	Weight %
-------------	----------

A. Dry Base Blend

Oat bran	30.00
Yellow corn cones	28.00
Psyllium - 85% purity	
	16.00
High methoxyl pectin	
	13.50
Dent corn starch	9.60
Guar gum	1.20
Salt	0.50
Sodium bicarbonate	
	0.50
Vitamin blend	0.40
Trisodium phosphate	
	0.30
	100.00%

B. Corn Syrup Blend

High fructose corn syrup	
	99.60
Food coloring	0.40
	100.00%

C.. . .

DETD . . . about 0.04% added aspartame. An additional vitamin mix may be applied here as described in Example 1. The high soluble fiber R-T-E cereal so prepared was conventionally packaged.

DETD The final product has a soluble fiber content of 6.4 g/oz and an insoluble fiber content of 1.3 g/oz giving a soluble to insoluble fiber ratio of 5:1. The total fructose content of the cereal is about 3% to 4%. The total fat content was. . .

CLM What is claimed is:

1. A ready-to-eat (R-T-E) cereal high in total dietary fiber, comprising a cereal composition including: A. about 2% to 37% by weight of the cereal composition of psyllium having a soluble fiber content of at least about 65% by weight; B. about 20% to 80% by weight of the cereal composition of a starchy cereal ingredient; C. sufficient amounts of an insoluble fiber source so as to provide the cereal composition with a weight ratio of soluble fiber to insoluble fiber of about 1 to 5:1; D. a moisture content of about 1% to 6% by weight of the cereal composition; and wherein the total fructose content is less than about 5% by weight, and wherein the minimum soluble fiber content is about 3 g/oz of the cereal composition.

. . . claim 1 wherein the cereal composition additionally comprises: E. about 10% to 60% by weight of the cereal composition of oat flour or oat bran.

3. The R-T-E cereal of claim 2 wherein the weight ratio of soluble fiber to insoluble fiber is at least 3:1.

4. The R-T-E cereal of claim 3 wherein the cereal composition comprises about 3 to 6 g/oz of soluble fiber.

5. The R-T-E cereal of claim 4 wherein the cereal composition includes about 0.1% to 15% by weight of the cereal composition of a soluble fiber source member selected from the group consisting of guar gum, carboxymethyl cellulose, high methoxyl pectin, and mixtures thereof.

6. The R-T-E cereal of claim 5 wherein the insoluble fiber source includes a member selected from the group consisting of sugar beet fiber, wheat bran, corn bran, rice bran, barley bran and mixtures thereof.

9. The R-T-E cereal of claim 8 containing about 4 to 6 g/oz soluble **fiber**, and wherein the R-T-E cereal is in flake form, wherein the water activity ranges from about 0.1 to 0.3, wherein the weight ratio of soluble **fiber** to insoluble **fiber** is greater than 5:1, and wherein the cereal is fortified with calcium, reduced iron and riboflavin.
10. A method for preparing an R-T-E cereal of good eating quality and high levels of soluble **fiber**, comprising the steps of: A. forming an homogeneous cereal blend comprising (1) about 5% to 37% by weight of **psyllium** having a soluble **fiber** content of at least 65% by weight, (2) about 20% to 80% by weight of a starchy cereal ingredient, (3) sufficient amounts of an insoluble **fiber** source so as to provide the blend with a weight ratio of soluble **fiber** to insoluble **fiber** of about 1 to 5:1, (4) about 20% to 40% by weight water, the weight percents of ingredients (1) to (3) being based on the total dry weight of the cereal blend, wherein the minimum soluble **fiber** content of the blend is about 3 g/oz (dry weight basis), wherein the total fructose content (dry weight basis) is. . .
- . . . 11. The method of claim 10 wherein the cereal blend additionally comprises (5) about 10% to 60% by weight of oat flour or oat bran.
- . . . 12. The method of claim 11 wherein the weight ratio of soluble **fiber** to insoluble **fiber** is at least 1.5:1.
- . . . method of claim 12 wherein the blend includes about 0.1% to 15% by weight of the blend of a soluble **fiber** source member selected from the group consisting of **guar** gum, carboxymethyl cellulose, high methoxyl pectin, and mixtures thereof.

L7 ANSWER 12 OF 13 USPATFULL
AN 89:93995 USPATFULL
TI Confectionery delivery system for mineral supplements
IN Yang, Robert K., Randolph, NJ, United States
Sharma, Shri C., Mendham, NJ, United States
Sheu, Shan-Shan, Parsippany, NJ, United States
Shaw, James J., Morristown, NJ, United States
PA Warner Lambert Co., Morris Plains, NJ, United States (U.S. corporation)
PI US 4882154 19891121
AI US 1988-257497 19881013 (7)
RLI Division of Ser. No. US 1985-811601, filed on 20 Dec 1985, now patented,
Pat. No. US 4778676
DT Utility
FS Granted
LN.CNT 654
INCL INCLM: 424/440.000
INCLS: 424/441.000; 424/465.000; 424/484.000; 424/499.000; 424/476.000;
424/498.000; 424/502.000; 514/948.000; 514/960.000
NCL NCLM: 424/440.000
NCLS: 424/441.000; 424/465.000; 424/476.000; 424/484.000; 424/498.000;
424/499.000; 424/502.000; 514/948.000; 514/960.000
IC [4]
ICM: A61K009-20
ICS: A61K009-28
EXF 424/440; 424/441; 424/476; 424/498; 424/502
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM The present invention relates to a novel confectionery delivery system for actives such as **fiber** and drugs. The confectionery delivery system comprises a chewable matrix and an active material, the combination of which is preferably both fat free and non-sucrose-containing, and therefore low in calories. Active materials

- such as dietary **fiber** and/or drugs can be incorporated and effectively masked in the delivery system. The unpleasant taste and mouthfeel of the **fiber** and/or drug is effectively masked and substantial hydration of the active is delayed until the delivery system passes through the . . .
- SUMM Prescribed daily dosage amounts for **fiber** are often very high, requiring the patient to administer the **fiber** or **fiber** composition several times per day. While their benefits are well known to the consuming public, the unpleasant fibrous mouthfeel and texture of products containing dietary **fiber** have resulted in reluctance of patients to comply with prescribed dosages.
- SUMM The trend, therefore, in patient use of the prior art products containing **fiber** or drugs has been to deviate from the prescribed dosage or frequency of dosage, thereby diminishing the effectiveness of the . . .
- SUMM With respect to dietary **fiber**, numerous attempts to mask the fibrous mouthfeel have been tried. Various baked products, granola-type product, cereals and snack-food products have attempted to incorporate **fiber** in confectionery systems. These products are generally high in caloric value and relatively low in dietary **fiber**. The objective of the prior art has been to attempt to conceal the unpleasant taste and texture of the **fiber** by using various materials such as fats, polyhydric alcohols, sugar solids or starch. While the objective is achieved to some degree, these materials increase the caloric value and dilute the effective dose. High amount of **fiber**, e.g., amounts greater than about 5%, typically were dry-tasting with an unpleasant fibrous mouthfeel.
- SUMM **Fiber** products which are specifically intended for bowel normalization and related disorders include those which are slurried in water. With respect to the prior art attempts to make a **fiber** product when is added to water and drunk as a slurry, the **fiber** tended to clump together, forming slimy, unpalatable masses. These **fiber** clumps were comprised of hydrated hydrocolloids, e.g., psyllium. High amounts of excipients were necessary to minimize clumps. These excipients or . . .
- SUMM Conventionally, **fiber** is incorporated into edible substances as fine powder. There are several reasons for this. Fine powdered **fiber** is less apt to form "fish-eye" clumps when hydrated, e.g., clumps having a dry center and wet surface. Furthermore, the purification of **fiber** often involves steps which reduce the particle size of **fiber**. Few soluble dietary fibers, with the exception of guar gum, hydrate sufficiently or uniformly unless the particle size is fine. Fine particles are, however, difficult to handle and process and products containing above 10 to 15% dietary **fiber** have unpalatable and fibrous textures.
- SUMM It is well known that the functionality and effectiveness of **fiber** and certain drugs such as ion exchange resins is dependent on the active surface area. Fine particles achieve the desired . . . area allows enhanced adsorption of bile acids, increased ion exchange, as well as other surface phenomena. In the case of **fiber**, increased surface area allows for increased adsorption of, and combination with, liquids, body metabolites and the like. The result is. . .
- SUMM . . . will depend to a large degree on the type of active chosen. For example, if the active is a dietary **fiber**, simple mixing or spray-coating is preferred. If the active is a drug such as cholestyramine, simple mixing or fluidized bed . . .
- SUMM The active is generally present in the final dosage form in therapeutic amounts commensurate with the type of drug or **fiber** used. Generally, the active and precoating will make up about 15 to about 30% by weight of the total dosage . . .
- SUMM The term "active" means the **fiber** or drug materials referred to herein which are incorporated into the confectionery delivery matrix either in the pre-coated or uncoated . . .

- SUMM The term "dietary fiber" is understood to mean the component of food which is non-digestible and non-metabolizable by humans. It is well known, however, . . .
- SUMM Dietary fiber can be divided into two broad categories: insoluble dietary fiber and water soluble dietary fiber. For purposes of this invention, "insoluble dietary fiber" means the water insoluble portion of an edible material remaining after chemical and enzymatic treatment has removed proteins, fats and carbohydrates. For example, brans, celluloses, hemicelluloses lignin and the like, are among those useful. "Soluble dietary fiber" means dietary fiber which is the water soluble portion of an edible material remaining after the chemical and enzymatic treatment has removed proteins, fats and carbohydrates. For example, pectin, guar gum, locust bean gum, gum arabic, karaya gum and others from the galacturonan and galactomannan classes; as well as psyllium seed gum, carageenan, konjac mannan, among others. These soluble fibers have been known to inhibit absorption of cholesterol in mammals, . . . salts. The mechanism for this benefit is believed to be three-fold in nature. First, the shear mass of the swelled fiber occludes the cholesterol and bile salts, thereby preventing absorption. Second, the fibers will absorb the cholesterol and bile salts, thereby. . . transmit time of stool bulk, which decreases the time in which absorption of cholesterol and bile salts can occur. Dietary fiber provides the bulking effect commonly associated with fibrous materials.
- SUMM Useful dietary fiber substrates include non-cellulosic polysaccharides, pectin, gums, algal polysaccharides, cellulose, hemicellulose, lignin, mucilages and mixtures thereof. The dietary fiber is present in the delivery system in amounts of about 1% to about 75% by weight; preferably in amounts of. . .
- SUMM The amount of flavoring agent employed is normally a matter of preference subject to such factors as flavor type, base type and strength desired. In. . .
- | | | | |
|----------------|-------|-------|----------|
| SUMM | . . . | 12.00 | 8.0-45.0 |
| Gelatin | | 1.00 | 0.5-3.0 |
| Glycerin* | | 5.00 | 2.0-9.0 |
| Hydrocolloid** | | | 0.10 |
| Pectin | | 1.50 | 0-10 |
| Citric acid | | 0.50 | 0.3-1.50 |
| Flavor/color | | 0.06 | 0.03-1.2 |
| Water | | 12.00 | 8.0-15.0 |
-
- *Anhydrous 99.5%
- **Represents 0.04% guar gum and 0.04% locust bean gum
- SUMM . . . The hydrocolloid is mixed into the delivery system in a hydrated or powder form. If the hydrocolloid is a dietary fiber it is preferably added in powdered form. Upon hydration, e.g., in saliva, the hydrocolloid becomes slippery almost immediately. This slippery. . .
- SUMM . . . active. For example, if an anion-exchange resin such as cholestyramine is used as the active, nonionic hydrocolloid materials such as guar gum or locust bean gum should be used. This is in contrast to the prior art cholestyramine patents, e.g., U.S.. . . with a variety of other actives. Among those hydrocolloid materials useful include natural and modified gums, e.g., locust bean gum, guar gum, carageenan, among others; celluloses and modified celluloses, pectin, mucilages, modified starch, noncellulosic polysaccharides, algal polysaccharides and mixtures thereof.
- SUMM In a separate container, preparation of the confectionery matrix is begun by preparing an aqueous solution of guar gum and locust bean gum. A gelatin/glycerin aqueous solution is then added to the guar gum/locust bean gum solution and mixed until uniform. Fructose and sorbitol are then dissolved in this solution and the

pre-coated. . .

DETD	. . .	40			
Lecithin	2.5	2.5	3.0	3.0	3.6
Fructose	40	40	38	35	30
Sorbitol	7	5	--	--	--
Mannitol	5	2	--	--	--
Guar gum	0.04	0.04	0.07	0.1	0.1

Locust bean gum
0.04 0.04 0.07 0.1 0.1

Water 16 16 18 16 16

Gelatin 2.5 2.5. . .

DETD Delivery systems F and G were prepared having a laxative dosage of dietary fiber as the active. The formulations were respectively identical to formulation A and C of Example I, except that oat bran was substituted for the cholestyramine.

DETD

Delivery system* - % weight

Ingredient	J	K
------------	---	---

Cholestyramine resin		
	20.0	30
Lecithin	2.5	3.0
Lycasin	52.00	--
Polydextrose	--	37.5
Sodium saccharin	--	0.5
Guar gum	0.04	0.07
Locust bean gum	0.04	0.07
Water	16.0	18.0
Gelatin	2.5	3.0
Glycerin	5.22	6.16
Flavor	1.7	1.7
	100	100

DETD This example demonstrates the use of a combination of dietary fiber (pectin) and cholestyramine as actives in the delivery system.

CLM What is claimed is:

1. A chewable confectionery delivery system for mineral supplements comprising: (a) a mineral supplement pre-coated with at least one material selected from the group consisting of lecithin, polyoxyalkylenes having chain lengths of about 4. . .
9. The delivery system of claim 8 wherein the gum is selected from the group consisting of guar gum, locust bean gum, and mixtures thereof.
11. The delivery system of claim 1 wherein the pre-coated mineral supplement is present in a pharmaceutically effective amount.
12. The delivery system of claim 1 wherein the pre-coated mineral supplement comprises about 15 to about 30% by weight of the final product.
13. The delivery system of claim 1 wherein the mineral supplement is selected from the group consisting of potassium chloride, calcium carbonates, magnesium oxide, alkali metal and alkaline earth metal salts.
14. A method of preparing a confectionery delivery system for mineral supplements comprising: (a) pre-coating the mineral supplement with at least one material selected from the group consisting of lecithin, polyoxyalkylenes having a chain length of about 4. . .

L7 ANSWER 13 OF 13 USPATFULL
AN 88:53690 USPATFULL
TI Crunchy, highly palatable, bulk-increasing, dietary **fiber supplement** composition
IN Moskowitz, Alan H., Budd Lake, NJ, United States
PA Warner-Lambert Company, Morris Plains, NJ, United States (U.S. corporation)
PI US 4766004 19880823
AI US 1986-944144 19861219 (6)
DT Utility
FS Granted
LN.CNT 636
INCL INCLM: 426/658.000
INCLS: 424/439.000; 426/613.000; 426/618.000; 426/804.000
NCL NCLM: 426/658.000
NCLS: 424/439.000; 426/613.000; 426/618.000; 426/804.000
IC [4]
ICM: A23L001-29
EXF 426/93; 426/804; 426/631; 426/658; 424/439
TI Crunchy, highly palatable, bulk-increasing, dietary **fiber supplement** composition
AB A crunchy, highly palatable, bulk-increasing, dietary **fiber supplement** composition which contains whole **psyllium** husks having a particle size of from about 12 to about 70 mesh, U.S. Standard Sieve, a palatable food-grade vegetable fat which is solid at room temperature, a sweetening agent, and at least one **flavoring agent**.
SUMM The present invention relates to a crunchy, highly palatable, bulk-increasing, dietary **fiber supplement** composition. More particularly, this invention relates to a dietary **supplement** composition containing whole **psyllium** husks, a food-grade vegetable fat which is solid at room temperature, a sweetening agent and a **flavoring agent**. The whole **psyllium** husks range in size from about 12 to 70 mesh and, when incorporated into a sweetened, flavored, food-grade vegetable fat at a certain level, provide a crunchiness which makes a **high-fiber** product appealing as well as efficacious. In a further embodiment, dietary fibers other than those derived from whole **psyllium** husks may be additionally included in the bulk-increasing dietary **supplement** composition of this invention.
SUMM . . . by waffles, wafers, or biscuits, after which the entire product is covered with a thin layer of chocolate. The vegetable **fiber** may be whole wheat bran and the filling may include honey, fruits, fruit jellies, or jams.
SUMM . . . Application No. 2,746,479 to Charlet et al., concerns confectionery bars such as chocolate bon-bons, etc, whereby shredded bran or vegetable **fiber** is added in an amount of 5% to 75% by weight. The presence of the bran or vegetable **fiber**, which may be used in the form of a finely divided powder or coarse granulate, is said to be beneficial. . .
SUMM U.S. Pat. No. 4,565,702 to Morley, et al., discloses a chocolate covered **fiber** snack bar wherein the **fiber** core contains an insoluble dietary **fiber** coated or enrobed with a soluble dietary **fiber**. The insoluble dietary **fiber** is derived from a cereal bran and the soluble dietary **fiber** may be gum arabic, tragacanth, karaya ghatti, agar, alginates, carrageenans, furcellaran, **psyllium**, galactoman, and mixtures thereof.
SUMM Other known food and snack products are formulated to contain textured food material and/or **fiber** admixed with chocolate.
SUMM . . . of snack foods or as ingredients in chocolate balls, cookies, breads, etc. The soft confectionery products may additionally contain a **fiber** material.
SUMM . . . to confectioneries, (such as chocolate or caramel) or to protein foods, (such as ham or sausage) to increase the vegetable

- SUMM fiber content of such confectioneries and foods.
U.S. Pat. No. 4,568,557, to Becker et al., discloses a snack food product prepared by premixing a dietary **fiber** with a food grade oil; premixing a compound coating containing a fractionated fat, sweetener, milk solids, yogurt, and a **flavoring agent**; blending the two pre-mixtures and adding a cereal product to obtain texture and a dried fruit or nut for flavor; . . .
- SUMM The use of **fiber** supplements as bulk laxatives or for bowel normalization is also known in the art. Products which provide approximately 5 grams of corn or wheat **fiber** per supplement are sold commercially. In addition, natural **fiber** laxative products containing **psyllium**, a bulk producing dietary **fiber**, are also known in the art and available commercially. For example, a thin wafer which contains **psyllium** as well as other fibers such as wheat bran and oat bran is commercially available. Another well-known commercially available bulk laxative product provides granules of **psyllium** which are admixed with water prior to ingestion.
- SUMM Thus, a variety of **fiber** materials have been admixed with fat-containing ingredients such as chocolate or food-grade oils to provide snack products which are considered. . .
- SUMM . . . crisp rice which is a puffed, baked product) have been admixed with chocolate to provide an appealing crunchy texture. And **psyllium** fibers in powdered or in seed form have been admixed with other fibers to provide bulk laxatives or products which are said to stimulate the natural digestive processes. However, the taste of most products containing a sufficient amount of **fiber** to be efficacious continues to be a problem. Thus, it is quite surprising that whole **psyllium** husks, when admixed with a flavored, sweetened, food-grade vegetable fat, at efficacious levels, will provide a crunchy dietary **fiber supplement** composition with an especially appealing texture.
- SUMM This invention relates to a crunchy, highly palatable, bulk-increasing, dietary **fiber supplement** composition comprising about 2% to about 30% by weight of whole **psyllium** husks having a particle size of from about 12 to about 70 mesh, wherein at least about 25% to about . . . about 75% by weight of a sweetening agent; and about 0.1% to about 25% by weight of at least one **flavoring agent**, all percentages being by weight, based on the weight of the total composition. In a further embodiment of the invention, there is additionally present in the dietary **fiber supplement** composition from about 2% to about 28% by weight, based on the weight of the total composition, of a dietary **fiber**, other than whole **psyllium** husks, which additional **fiber** may include fruit **fiber**, grain **fiber**, vegetable **fiber**, cellulose **fiber**, water-soluble gums and mixtures thereof.
- SUMM The crunchy, highly palatable, bulk-increasing, dietary **fiber supplement** composition of this invention is prepared by mixing a melted food-grade vegetable fat, which is solid at room temperature, with a sweetening agent and at least one **flavoring agent** until a viscous liquid is obtained; adding whole **psyllium** husks having a particle size ranging from about 12 to about 70 mesh to the viscous liquid and mixing until. . . the mixture into a desired shape and allowing it to cool and harden. In the embodiment in which a dietary **fiber** other than whole **psyllium** husks is included, such dietary **fiber** is also added to the viscous melted liquid and processing is continued, as described.
- SUMM The appealing crunchiness and bulk-forming properties of the dietary **fiber supplement** composition of the present invention are provided by whole **psyllium** husks. **Psyllium** husks are described in the United States Pharmacopeia, Volume 21, as the cleaned, dried seed coat which is separated by winnowing and thrashing

from the seeds of *Plantago ovata* Forskal, known in commerce as Blond **Psyllium**, Indian **Psyllium** or *Ispaghula*; or from *Plantago psyllium* Linne or from *Plantago indica* Linne (*Plantago arenaria* Waldstein and Kitaibel), known in commerce as Spanish or French **Psyllium**. Both the **psyllium** seed and **psyllium** husks are classified as bulk forming laxatives, that is, as agents which increase the bulk volume and water content of the stool, thereby promoting bowel movement. **Psyllium** husks are commercially available in whole or in powdered form. The whole **psyllium** husks, when separated from **psyllium** seeds by commonly used processes, range in size from about 12 mesh to about 70 mesh. The mesh size in. . .

SUMM For purposes of this invention, the term whole **psyllium** husks includes unground husks as they are separated from the seed, wherein the whole husks range in size from about. . .

SUMM In the practice of this invention, whole **psyllium** husks having a particle size ranging from about 12 to about 70 mesh, wherein at least about 25% to about. . . to about 30 mesh size range, may be utilized to provide the crunchy texture which consumers find especially appealing. Whole **psyllium** husks ranging in size from about 12 to about 30 mesh are preferred, since they provide more crunch at any.

SUMM It is critical to use whole **psyllium** husks having a particle size within the above ranges at a certain level of concentration in order to obtain the desired crunchy quality. Thus, the whole **psyllium** husks must be present in an minimum amount of about 2% by weight, based on the weight of the total dietary **supplement** composition, in order to achieve a crunchy texture which appeals to consumers. Furthermore, it has been found that inventive compositions containing levels of whole **psyllium** husks in an amount in excess of 30% by weight, based on the weight of the total dietary **supplement** composition, become unpalatable and begin to display the dry, dusty, fibrous, straw-like mouthfeel characteristic of most bulk laxative or dietary **fiber** compositions. Thus, in the practice of this invention, it is essential to utilize about 2% to about 30% by weight, based on the weight of the total composition, of whole **psyllium** husks within the critical particle size range described above, in order to obtain the benefits of crunchy good taste together.

SUMM At lower levels, such as about 2% to about 3% by weight of the whole **psyllium** husks, based on the weight of the total composition, it is preferable to use whole **psyllium** husks ranging in size from about 12 to about 30 mesh, in order to provide crunch, since husks of larger size provide more crunch. At concentrations of about 3% and above by weight, whole **psyllium** husks having a particle size of about 12 to about 70 mesh, will provide crunch. Thus whole **psyllium** husks present in an amount of from about 3% to about 30% by weight are preferred, while amounts of from. . . and about 12% to about 22% are most preferred. As will be more fully discussed below, the amount of whole **psyllium** husks used in practice of this invention in excess of the 2% by weight amount which is required to obtain crunch, will depend, on such factors as the amount of other dietary **fiber** present, the amount of laxation desired, and the amount of **fiber** supplementation desired.

SUMM The next critical ingredient used in the dietary **supplement** composition of this invention is a food-grade vegetable fat which is solid at room temperature (24° C.). Although many fats. . . has been found that fats commercially available for use in food products which are suitable for inclusion in the dietary **supplement** composition of this invention generally include food-grade vegetable fats which are substantially solid at room temperature such as cocoa butter. . .

SUMM . . . about 22.9% to about 40% by weight of vegetable fat is provided, based on the total weight of the dietary **fiber**

supplement composition. As will be seen in the examples set forth below, additional vegetable fat may be added, if necessary, to commercially available compound coatings during the preparation of the crunchy dietary **supplement** composition of this invention. It should be noted that, in commercially available compound coatings and confectionery coatings containing a mixture. . .

SUMM . . . weight, and most preferably from about 35% to about 55% by weight, based on the weight of the total dietary **fiber supplement** composition. Generally speaking a disaccharide, particularly sugar, is preferred since it also provides bulk and texture to the dietary **supplement** composition of this invention.

SUMM . . . to about 5.0%, most preferably about 0.05% to about 2.5% by weight, based on the weight of the total dietary **fiber supplement** compositions. The artificial sweeteners and the bulking agents generally provide approximately equivalent levels of bulk and sweetness as do the. . . 35% to about 55% by weight of one or more sweetening agents, based on the weight of the total dietary **fiber supplement** composition, are used in the practice of this invention. The amounts of sweetening agents described above are ordinarily necessary to. . .

SUMM Flavoring agents well-known in the food and confectionery art are utilized in the dietary **supplement** composition of this invention. Typically, such flavors include cocoa powder; carob powder; peanut powder; natural or synthetic fruit flavors such. . . powders, yogurt powder and the non-fat variations thereof. At least one of aforementioned flavoring agents is included in the dietary **supplement** composition of the invention in amounts of about 0.1% to about 25%, most preferably about 0.5% to about 20%, by weight, based on the weight of the total **supplement** composition, and depending to a large extent on the type of flavor being used.

SUMM In one embodiment of this invention, the inclusion of an additional dietary **fiber** other than whole **psyllium** husks is contemplated. The aforementioned dietary **fiber** may be a fruit **fiber**, a grain **fiber**, a vegetable **fiber**, a cellulose **fiber**, water-soluble gums or mixtures thereof, and it may be used in the dietary **supplement** composition of this invention in amounts ranging from about 2% to about 28%, preferably about 6% to about 11%, most preferably about 8% to about 9% by weight, based on the weight of the total dietary **fiber supplement** composition. The preferred additional dietary fibers are those which have a high dietary **fiber** content and which are known to be beneficial to health such as corn bran, wheat bran, soy **fiber**, **guar** gum and mixtures thereof.

SUMM Other food additives, well known to those skilled in the art, may be incorporated into the dietary **supplement** composition of this invention to achieve certain effects, including emulsifiers, preservatives, coloring agents, and the like.

SUMM **Fiber** has been mentioned as having possible value in a variety of preventative medical areas, such as constipation, weight reduction, diverticulitis, cardiovascular disease and cancer. However, different **fiber** components have very different physiological functions and the daily level of a particular dietary **fiber** recommended to achieve physiological effects will vary with the type of **fiber** ingested. For a bulk laxative effect, a dietary dosage of **psyllium fiber**, whether it be derived from **psyllium** seeds or **psyllium** husks, in an amount of from about 5 to 30 grams is recommended. In accordance with the practice of this invention, dietary **supplement** compositions may be prepared in units of about 1 to about 1.3 ounces which will contain about 5 grams of **psyllium fiber**. If minimal bulk laxative effects are desired, it is possible to include the minimum amount of whole **psyllium** husks necessary to achieve the desired crunchy texture characteristic of the **supplement** compositions of this invention, and up to about 28% by weight, based on

the weight of the total **supplement** composition, of additional dietary fibers, other than whole **psyllium** husks which have other beneficial attributes. Thus, the crunchy, highly palatable, **dietary fiber supplement** compositions of this invention also serve as a vehicle for a variety of dietary fibers which may be recommended for. . .

SUMM The crunchy texture of the **dietary fiber supplement** compositions of this invention is quite surprising since whole **psyllium** husks, when placed in water or ingested directly, develop a mushy, pulp-like texture rather than the crunchy texture which is. . .

SUMM The crunchy, highly palatable, **dietary fiber supplement** composition of this invention is prepared by melting the vegetable fat, sweetener and flavor ingredients at a temperature of from. . . oven or the like. If a compound or confectionery coating is used to provide the vegetable fat, sweetening agent, and **flavoring agent** ingredients, no further processing other than heating, as described, is required. However, if a commercial compound or confectionery coating is not utilized, the vegetable fat, sweetening agent and **flavoring agent** ingredients generally should be refined to reduce the particle size of the individual ingredients, using practices well-known to those skilled in the art of preparing compound or confectionery coatings. The whole **psyllium** husks are added to the melted mass, with mixing, and mixing is continued until a homogeneous mixture is obtained. If additional dietary fibers other than whole **psyllium** husks are to be included, they may be added together with the **psyllium** husks or before or after the husks are added. The order of addition is not critical but mixing is continued. . .

DETD . . . no means intended to limit the effective scope of the claims. All percents are by weight of the total **dietary supplement** composition unless otherwise specified.

DETD **Coating Plus Psyllium Husk Fiber**

DETD . . . milk) containing 71.3 grams of fat, is melted at about 50° C. in a microwave oven. 60 grams of whole **psyllium** husks having a particle size between 12-70 mesh U.S. Standard Sieve (approximately 40% having a particle size between 12-30 mesh, . . . the chocolate, followed by demolding. The products obtained have a crunchy mouthfeel and are highly palatable. Based upon the **dietary fiber** content of the **psyllium** husks, which is 89%, the product contains 17.2% **dietary fiber** and will provide 4.8 grams of **dietary fiber** per 1 oz. serving. . .

DETD Following the procedure of Example 1, inventive **dietary fiber supplement** compositions are prepared containing the amounts of ingredients shown above for Examples 2-6. In Examples 2 and 6, the chocolate. . . comparative product of Example 9. The Example 9 product also contained corn bran, medium grind, but did not contain whole **psyllium** husks.

DETD **Examples 2-6**

	Ex. 2	Ex. 3	Ex. 4	Ex. 5	Ex. 6
Ingredients Amounts In Grams					
Whole Psyllium Husk*	990	50	50	50	40
Coating A	3660				384
Coating B		248			
Coating C			259		
Coating D				250	
Cocoa Butter					
	300			20	
Vegetable fat		5		5	
Chocolate shavings					

	120	12
Corn bran, medium		44
grind		
% Dietary fiber		
17.6%	14.8%	14.8% 14.8% 14.2%

*Particle size ranging from 1270 mesh, U.S. Standard Sieve (approximately 40% having a particle size. . .

DETD This example demonstrates the amount of whole **psyllium** husks required to provide the appealing crunchy texture of the inventive **dietary fiber supplement** composition.

Ingredients	I	II	III	IV
	Amounts In Grams			
Compound Coating of Example 1	52	58	60	61
Whole Psyllium husks*	10	4	2	1
Total Compositions Wt.	62	62	62	62

*Particle size 12-70 mesh, U.S. Standard Sieve (approximately 40%. . .

DETD . . . procedure of Example 1 is followed. The formulations were evaluated after demolding. Formulation I had excellent crunch, palatability and dietary fiber content. Formulation II had good crunch but was low in dietary fiber. Formulation III had crunch. The crunch for Formulation IV was barely perceptible, and judged to be unacceptable. This example demonstrates that between 2% and 3% by weight of whole **psyllium** husks are required to obtain perceptible crunchy texture.

DETD The following examples demonstrate that not all dietary fibers provide the crunchy, appealing texture of the inventive dietary **supplement** composition. All mesh sizes are U.S. Standard Sieve. All corn bran contains 80% dietary fiber. The **psyllium** husk contains 89% dietary fiber and the oat contains 80% dietary fiber.

	Lecithin			
	0.5	0.5	0.5	0.6
	1.0			
Corn bran, regular	60.0			
20-60 mesh				
Corn bran, medium	60.0			
60-100 mesh				
Corn bran, fine, 60 mesh	60.0			
Corn bran, ultra fine 100-200 mesh	60.0			
Psyllium husk, powdered 40 mesh			25.3	
Oat fiber, 60 mesh			66.2	
% Dietary fiber	16%	16%	16%	15.4% 16.6% 17.6%

DETD The procedure of Example 1 is followed, substituting the fiber specified in each of Examples 8 to 13 for the whole **psyllium** husks of Example 1. After demolding, each product was evaluated, as follows:

CLM What is claimed is:

1. A crunchy, highly palatable, bulk-increasing, dietary **fiber supplement** composition comprising: (a) from about 2% to about 30% by weight, based on the weight of the total composition, of whole

psyllium husks having a particle size ranging from about 12 to about 70 mesh, U.S. Standard Sieve, wherein about 25% to about 95% of the whole **psyllium** husks are in the particle size range of about 12 to about 30 mesh, U.S. Standard Sieve; (b) from about . . . from about 0.1% to about 25% by weight based on the weight of the total composition, of at least one **flavoring agent**.

2. The composition of claim 1 wherein the whole **psyllium** husks are present in an amount of from about 9% to about 27% by weight, based on the weight of. . .

. . . present from about 2% to about 28% by weight, based on the weight of the total composition, of a dietary **fiber** other than whole **psyllium** husks selected from the group consisting of fruit fibers, grain fibers, vegetable fibers, cellulose fibers, water-soluble gums, and mixtures thereof.

12. The composition of claims 1 or 11 wherein the **flavoring agent** is selected from the group consisting of cocoa powder, carob powder, peanut powder, yogurt powder, whole milk powder, vanilla, natural. . .

13. The composition of claims 1 to 11 wherein the **flavoring agent** is cocoa powder, present in and amount of from about 0.5% to about 20% by weight, based on the weight. . .

14. The composition of claims 1 or 11 wherein the **flavoring agent** is a combination of cinnamon and apple flavor, present in an amount of from about 0.5% to about 20% by. . .

15. The composition of claims 1 or 11 wherein the **flavoring agent** is a combination of raspberry flavor and yogurt, present in an amount of from about 0.5% to about 20% by. . .

16. The composition of claims 1 or 11 wherein the **flavoring agent** is peanut powder present in an amount of from about 0.5% to about 20% by weight, based on the weight. . .

17. The composition of claim 11 wherein the whole **psyllium** husks are present in an amount of from about 9% to about 27% by weight, based on the weight of. . .

20. The composition of claim 11 wherein the dietary **fiber** other than whole **psyllium** husks is selected from the group consisting of corn bran, wheat bran, and mixtures thereof.

21. The composition of claim 20 wherein the dietary **fiber** other than whole **psyllium** husks is present in an amount of from about 6% to about 11% by weight, based on the weight of. . .

22. A crunchy, highly palatable, bulk-increasing, dietary **fiber supplement** comprising: (a) from about 12% to about 22% by weight, based on the weight of the total composition, of whole **psyllium** husks having a particle size ranging from about 12 to about 70 mesh, U.S. Standard Sieve, wherein about 25% to about 95% of the whole **psyllium** husks are in the particle size range of about 12 to about 30 mesh, U.S. Standard Sieve; (b) from about . . . from about 8% to about 9% by weight, based on the weight of the total composition, of an additional dietary **fiber** selected from the group consisting of corn bran, wheat bran, and mixtures thereof; and (e) from about 0.5% to about 20% by weight, based on the weight of the total composition, of at least one **flavoring agent**.

23. A crunchy, high palatable, bulk-increasing, dietary **fiber supplement** comprising: (a) from about 12% to about 22% by weight, based on the weight of the total composition, of whole **psyllium** husks having a particle size ranging from about 12 to about 70 mesh, U.S. Standard Sieve, wherein about 25% to about 95% of the whole **psyllium** husks are in the particle size range of about 12 to about 30 mesh, U.S. Standard Sieve; (b) from about . . . from about 0.5% to about 20% by weight, based on the weight of the total composition, of at least one **flavoring agent**.

(FILE 'HOME' ENTERED AT 17:55:05 ON 10 DEC 2002)

FILE 'AGRICOLA, ALUMINIUM, ANABSTR, APOLLIT, AQUIRE, BABS, BIOCOMMERCE,
BIOTECHNO, CABA, CAOLD, CAPLUS, CBNB, CEABA-VTB, CEN, CERAB, CIN,
COMPENDEX, CONFSCI, COPPERLIT, CORROSION, ENCOMPLIT, ENCOMPLIT2, FEDRIP,
GENBANK, INSPEC, INSPHYS, INVESTEXT, IPA, ...' ENTERED AT 17:55:35 ON 10
DEC 2002

L1 2145891 S FIBER
L2 0 S L1 AND GUAR AND OAT AND PAYLLIUM
L3 5183 S L1 AND GUAR
L4 586 S L3 AND OAT
L5 119 S L4 AND SUPPLEMENT
L6 62 S L5 AND PSYLLIUM
L7 13 S L6 AND FLAVORING AGENT